Telephony.

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Monopoly—or Progress?

Conditions in the telephone business are a feature of a world-wide struggle—the contest waged by certain men, seeking to dominate industrially and socially through the control of large aggregations of capital. The telephone business is almost unique among the great industries of the country in its marked drift away from an established and entrenched centralized monopoly toward a large measure of local ownership. Hence has come its progress as an art and industry.

Had monopoly persisted, or should it be allowed to re-establish itself, where would the industry be a few years hence?

Rather than answer this question ourselves just now, let us turn to a wise, conservative, disinterested authority. The *Engineering Magazine* is a paper noted for strength, independence, high ideals, and dignified promotion of sound industrial progress on broad lines. Its February number contains an article by Dr. F. E. Junge-Hermsdorf. The editors strengthen his article by stating that: "He views affairs with the double advantage of an intimate acquaintance with the engineering industries and an external perspective of American economic poljcies and tendencies."

Let us see what he thinks of monopoly. In the first place, he touches directly upon the human side: "Today, individuals are beginning to dread the power of capital for the same love of liberty that once made them dread the power of government."

We read elsewhere that capital brings comfort, ease, prosperity. Why should we dread it? Dr. Junge-Hermsdorf points to the concentration of money-power, saying: "Of course, there is the old theory that, corporations being composed of a number of individual shareholders and representing an approach towards the socialism of private enterprise, the corporate wealth of the country is distributed over a fairly large percentage of the population. Yet, taking seventy of the leading corporations of the Union, it is found that in railroads not more than 288,000, and in industrial companies no more than 338,800 shareholders are interested. Of these shareholders, it must be remembered, only a small percentage is represented by individuals. For instance, of the $17,500,000,000 of railroad stock now outstanding in the United States, 65 per cent of the total is *not* owned by individual investors living in America. And, taking the wealth statistics of the Tenth Census, it is found that 0.3 *per cent of the American people owned* 20 *per cent of the wealth,* 8.97 *per cent of the people,* 51 *per cent of the wealth, and* 91 *per cent of the people only* 29 *per cent of the wealth.* For comparison I give the corresponding figures from Germany, compiled from the official statistics by Professor Gustav Schmoller, of Berlin. Of the total wealth amounting to about forty-five billions, only 2 per cent is vested in the upper classes, 54 per cent in the middle classes, and 44 per cent in the lower classes."

Why should we fear this concentration of capital—of money power? Are we not constantly asking the government to assume greater power? Then why object to giving our capitalists, our developers of industry, greater power? Listen again to this German observer: "Government, the great partnership of the State, holding the total assets of society, is a legitimate and recognized authority, established by weight of historical evolution, carrying within it the sanction and inspiration of ages, being free from slavery to instant gain, possessing distance of vision unhampered by special interests, and swinging an instrument of moral force such as no private individual or combination of individuals can ever wield. The other alternative of commercial dealing, private monopoly, or the power of capital—though eagerly bent upon usurping and misusing the *privilege* of government—neglects to fulfill any of its *responsibilities.*"

He gets to the nub of his discourse in the query: "Is the modern form of capitalistic organization, concentration of production and elimination of competition, favorable to industrial progress?"

His answer: "The technical forces in industrial production are being overruled by the financial forces, by greed, ignorance and the rule of thumb. The commercial success of an enterprise on the levelled markets depends far more on the ability of the sales department than on the real economic, technical, artistic merits intrinsic to the products thereof. There is no management so alert, so watchful, so free from slavery to

instant gain, that it can direct the affairs of our gigantic modern combines in the way of intellectual, social, uplifting effort, away from worship of mere wealth. * * *

"Do the pioneers of *progress*, do engineers, do artists, do literary men, do all progressive workers, realize that the monopolistic order of society established today contains in itself all the dangers against which the fathers fought? That private monopoly is the source and sustenance, not only of bad government but of national stagnation, and if permitted to continue still farther must ultimately destroy the very foundations upon which the commonwealth rests? Are we aware of the fact that our professions, by the rule of monopoly, are being degraded to a pitiable rank; that we are becoming the eunuchs of a hybrid civilization, the tools of *mammon*, which in its morbid zeal for uniformity, for tonnage, for immediacy, is reducing the whole world to one dead level, stifling originality, quenching individuality, crushing out the most wonderful of faculties—the creative faculty of man—beyond a possibility of resurrection, and forcing every one of us to fit himself to its Procrustean bed!"

What do we think? What are we going to do about it?

You can get along without a telephone but it costs time and time is money.

The Free County Exchange Problem.

The only trouble with a few of our friends in the Mutual companies is that they cannot see that work, and the time of men and women doing the work, are valuable. They have not learned that poles decay and fall down, and wires rust out, any more than they realize that good telephone service is so well worth having that it is worth paying for, and that there is no way in this world for an honest man to get something for nothing. These things are learned only from long experience in the telephone business. Some are learning faster than others, and perhaps an unfortunate minority will retire from the joyous telephone game altogether before they get a chance to find out these truths.

Of course we have to admit that putting up telephone lines and fussing around with the p oblems which are forced upon his attention is more or less of a game with the Mutual operator. He may do a great deal of good work for the fun of the thing, and out of pure good will to his fellow men, but if the business is a success in the way of furnishing telephone service, as so many of our Mutual systems are, it is bound to grow, and sooner or later will have the same practical problems of income and expense, repairs and replacements, expansion of organization, hiring and training of help, bringing in slow pay collections, and all other details, which have forced themselves upon the commercial companies.

Under these conditions it is too bad that some of the Mutual companies still cling to the idea that it is a part of their work to furnish so-called free exchange service; that their duties will not be performed, nor life worth living unless they do so.

This free exchange idea is fundamentally wrong, and it makes a lot of trouble in practice.

Throughout the middle west it is really one of the biggest questions which must be settled. It is a barrier in the course of orderly progress in the work of supplying the public with telephone service on an equitable basis, considering the three elements of extent, quality and cost of service.

The Nebraska Railroad Commission took up a discussion of this question at a hearing held immediately after the convention last week. It is a good thing to get the matter before a body having supervisory powers, and courage to exert them, even in the face of temporary opposition from some quarters. It is probable that it will be some time before the real meat of the cocoanut, or nub of the question, is reached or settled. We have never yet heard a wholly satisfactory answer to the argument of the man who is located on a section about equally distant from several towns, with all of which he has occasion to do business. This may be the only question which is holding back the Nebraska Railway Commission from giving a decision which will be a great help in the solution of the free exchange problem.

It is time for the men of brains in the telephone business to get busy and see if they cannot solve it themselves and give an answer which will satisfy a commission. Aside from this one point, there can be no question that a commission giving ample consideration to the situation would rule against the principle of free exchange.

TELEPHONY would like to hear from the men who have had this problem prominently presented to them in their own territory, or that of their neighbors. It will never be solved if we do not think about it, and work at it. Why not take it up now and get somewhere? We can surely do it!

Modern life has made some of us cowards—afraid to face the grim struggle that waits in the pathway of every honest man.

The New Department Devoted to Railway Telephony.

The newest branch of the telephone art, which in two brief years has sprung into a position of tremendous importance, namely, Railway Telephony, will hereafter have its special department in TELEPHONY. Especial attention is invited to the railway section of this and future issues, and readers are urged to favor us with comments and co-operation in its development.

UNANIMOUS ENDORSEMENT OF TELEPHONY BY NATIONAL ASSOCIATION

BE IT RESOLVED by the National Independent Telephone Association that, in view of the loyal, intelligent and comprehensive support rendered by TELEPHONY to the National Independent Telephone Association and to Independent telephony in general, it is the duty of this Association and all interests engaged in Independent telephony to encourage and give to said publication loyal and unqualified support, and to co-operate with it. —Resolution passed at convention held at Chicago, February 8, 9 and 10, 1911.

Charges Bell With Conspiring to Suppress Competition

City Attorney of Kenosha, Wisconsin, Brings Action in County Court Alleging that Wisconsin Bell, in Merger with Competitor, Unlawfully Conspired to Eliminate Competition and Form Monopoly and to Increase Cost of Telephone Service in Kenosha

In an action brought in the Kenosha County Circuit Court, Calvin Stewart, city attorney of Kenosha, Wis., charges the Wisconsin (Bell) Telephone Co. with conspiracy with the definite intent to eliminate competition in that city. The other parties to the suit are the Citizens Telephone & Telegraph Co. and the Kenosha Home Telephone Co. The Citizens was the former Independent company in Kenosha, and it is alleged that the Kenosha Home was formed in October, 1905, to take over the properties of the other two companies named.

The complaint reviews the facts prior to the conspiracy charged, showing that the Wisconsin Bell was operating a telephone system in Kenosha in the month of March, 1903, at which time a franchise was granted to the Citizens company. This franchise, according to a copy of the grant attached to the complaint, provided that certain telephones were to be furnished the city without charge and that certain space on the poles of the company and in its ducts was reserved for the city's use.

Notwithstanding the provisions of the ordinance, the complaint continues, the Wisconsin Telephone Co. and the Citizens company did, in October, 1905, "unlawfully conspire and agree together to restrain commerce and form a monopoly, in the city of Kenosha, of the telephone business, and did unlawfully conspire and agree together to eliminate competition in the telephone business in said city, and did unlawfully and wrongfully conspire and agree together to raise the rates for telephones and telephone service," and "to defraud the plaintiff (the city) of the benefits of the contract previously entered into and existing" with the Citizens company.

"In pursuance of said unlawful conspiracy in restraint of commerce and to eliminate competition," the complaint goes on, "and to raise the price of telephones and telephone service, and to form a monopoly of the telephone business within the city of Kenosha, and to deprive the plaintiff of the benefits of the contract existing with the Citizens Telephone & Telegraph Co., the said Kenosha Home Telephone Co., after its said organization, and pursuant to the scheme and conspiracy aforesaid, on the 29th day of November, 1905, purchased the property" of the Wisconsin Bell and the Citizens company.

This action was immediately followed, says the complaint, by the securing of new contracts from the patrons of both companies involved. These contracts were obtained, it is alleged, "by threats, intimidation and coercion (all competition having been eliminated)" "at a rate at least 50 per cent in excess of the rates theretofore charged" by either company, "and also in excess of the rates permitted to be charged" by the Citizens' franchise.

The complaint goes on to show that, on or about November, 1908, the Kenosha Home, successor of the other two concerns, notified the city that it could not and would not live up to the agreement made by the Citizens company with the city, on the ground that the Wisconsin laws of 1907 forbade its carrying out the agreement. This position the city holds to be untenable, on the ground that the franchise was entered into long before the law was passed, and that the law does not apply in this case.

In conclusion the city sums up as follows: "That said unlawful conspiracy to eliminate competition and to form a monopoly and to raise the price of telephones and telephone service to the subscribers within the city of Kenosha, and to deprive the plaintiff of the benefit secured to it . . . was consummated by the said defendants . . . and that since the month of December, 1905, there has been no competition in the telephone business within the city of Kenosha, and that the price to subscribers and patrons has been raised at least 50 per cent. . . ."

Judgment is demanded against "each and all defendants" for the sum of $25,000 and the costs of the action.

The outcome of the suit will be closely watched by telephone men throughout the state, as well as elsewhere, because of the issues involved and the precedents which will be established. Should Mr. Stewart succeed in pushing this case to a favorable conclusion, there is no doubt that his action will be followed by a number of others elsewhere. He is said to have spent a great deal of time in gathering evidence in this case and to be confident of winning it.

Louisville Home Declares Dividend of 1½ Per Cent.—President Coleman is Not Re-elected.

At the recent meeting of the directors of the Louisville Home Telephone Co., a dividend of 1½ per cent was declared, payable April 1 to stockholders of record March 25. This was unexpected and will undoubtedly have the effect of raising still higher the price of the company's stock, which has been recently experiencing a gradual increase in value.

Another feature of especial interest at the meeting was the resignation of E. M. Coleman, president of the company. Mr. Coleman stated that he has been in the telephone business for more than twenty-two years and was now prepared to take a long rest. The resignation was accepted and E. H. Cady, Toledo, Ohio, was elected to succeed him. The other officers elected at this meeting were: Vice-president, Judge J. M. Lassing, Frankfort, Ky.; secretary, D. W. Johnson; treasurer, Joshua D. Powers; assistant treasurer, S. M. Heller; general manager, Philip S. Pogue, the last four of Louisville.

An official of the company declared after the meeting that the dividend must not be considered as establishing either an annual or a semi-annual basis. He stated that it is impossible to say what subsequent action will be taken along that line.

Ohio Convention on March 30.

The annual meeting of the Ohio Independent Telephone Association will probably be held at Columbus March 30. All sessions will be held at the Hartman Hotel. Several hundred representatives of Independent telephone companies throughout the state will attend and the hotel will be crowded beyond its scheduled capacity.

A number of telephone and equipment manufacturers have made reservations for display space and the convention promises to be large. The complete program will be given out later.

Compulsory Connection Bill Fails in Indiana.

The bill providing for compulsory connection between telephone systems failed to pass in Indiana and the public utilities measure was never introduced. The only other law passed provides that the county commission may regulate the planting of poles along the public highways.

National Convention Endorses Compulsory Connection

Directors Unanimously Adopt Resolutions Urging This Legislation in Various States, Coupled With Commission Control, and Pledges Support—Officers Directed to Assist New York in Bell Fight in Rochester Case—Policy Now Well Defined—Manford Savage, President

The directors of the National Independent Telephone Association took a most important step this week toward defining the present policy of the organization, by the unanimous passage of a resolution endorsing the principle of compulsory physical connection. Not only was the principle endorsed, but the support of the association was pledged on behalf of all efforts looking to the adoption in the different states of measures compelling interchange of service under commission control. The resolution earnestly recommends the procurement of such legislation and the officers of the association are instructed to render all reasonable assistance in the accomplishment of this end.

Manford Savage, President National Association.

Another resolution was unanimously passed, relative to the situation in New York state, where the Bell interests are said to have concluded arrangements for the purchase of the Rochester group of Independent properties. This lends the strength of the national association to the Independent companies in New York state in their efforts to prevent the proposed transaction. The resolution in full is as follows:

WHEREAS, It is reported to this Association that a firm offer has been made by the Bell company through one of its subsidiary companies, for the control of the Rochester Telephone Co., the Syracuse Telephone Co., the Utica Telephone Co. and the subsidiary companies owned by those companies in New York state, and

WHEREAS, this association in 1907 used its good offices in defeating the carrying out of just such a transaction through invoking the laws in New York state,

THEREFORE, BE IT RESOLVED, That the officers of this association be and they hereby are directed to use their best efforts to assist the Independent companies of New York state to defeat the purpose of the Bell company to acquire control of the above-named telephone companies in New York state, unless the said offer is withdrawn.

These two resolutions of the directors of the national body, together with that unanimously adopted by the convention, which recommended control of the industry by state and national commissions, may be fairly regarded as constituting a complete outline of the policy of the National association The resolutions are, therefore, printed in full herewith.

Officers for the ensuing year were elected by the directors at this meeting, as follows: President, Manford Savage, Champaign, Ill.; first vice-president, E. B. Fisher, Grand Rapids, Mich.; second vice-president, N. G. Hunter, Wabash, Ind.; secretary and treasurer, J. B. Ware.

The election of Mr. Savage to the presidency is regarded as most felicitious. He is known throughout the country as a stalwart and successful Independent, thoroughly conversant, from practical experience, with every phase of the telephone business. A man of charming personality, he commands the entire respect of his associates; an attorney by profession, he is singularly well qualified for a position which demands a legal and constructive mind.

Since his election, Mr. Savage has declared that the fixed purpose during the coming year will be, among other things, "to maintain the integrity of the national association, yielding none of the basic principles upon which it is founded." His first official statement is printed in full elsewhere in this article. It is direct and concise.

It was the judgment of the directors of the association at this meeting that they should hereafter meet regularly once a month. The second Tuesday in the month was fixed upon, and this plan will be carried out. It was felt that the resultant frequent and regular discussion of the situation by the men at the head of the association would be

PRESIDENT SAVAGE ANNOUNCES CONSTRUCTIVE POLICY

As to the policy to be pursued by the National Association during the coming year—personally, the President has no policy. The Board of Directors passed a resolution fixing a monthly meeting of the board. As I understand it, these meetings will be in the nature of a round robin, where all matters affecting the Independent telephone interests will be discussed and such action taken as seems wise to a majority of the board.

I may say the fixed purpose will be to maintain the integrity of the National Association, yielding none of the basic principles upon which it is founded; to extend the hand of fellowship to all honorably engaged in the Independent telephone business; to eliminate suspicion; to reject as unworthy all insinuations of bad faith on the part of those working to a common purpose, the good of all; and to invite the freest discussion of all matters affecting Independent telephone men in the United States.

beneficial in the extreme. In this conclusion, as in all their deliberations, the directors were a unit.

F. N. Kondolf, of Rochester, N. Y., resigned as a member of the board of directors. His resignation was accepted and Gen. A. A. Goddard, of Topeka, Kans., was elected to fill the vacancy.

Mr. Savage, the new president, is fifty-four years of age. He was one of the three founders, in 1900, of the Home Telephone Co., of Champaign, Ill., of which company he is still president. He was, for three years, president of the Illinois Independent Telephone Association, and is now a member of the state Executive Committee. He has served twice as treasurer of the national organization, and has been a member of the national board of directors for several years.

As the senior member of the law firm of Savage & Woods, he is actively engaged in the practice of law at Champaign. A graduate of the University of Illinois, Mr. Savage practiced in Nebraska for about eight years, serving for some time as district attorney in the central part of that state. In 1892 he returned to Champaign, when the present firm was formed. In politics he is a Republican. He is Past Exalted Ruler of the local lodge of Elks (B. P. O. E.).

There were present at the meeting of the board on this occasion the following directors: H. D. Critchfield, E. B. Fisher, B. G. Hubbell, E. H. Moulton, Theodore Gary, W. J. Uhl, A. E. Boqua, F. H. Woods, S. E. Ward, L. D. Kellogg, Manford Savage and N. G. Hunter.

RESOLUTIONS DEFINING POLICY OF NATIONAL ASSOCIATION

NATIONAL DIRECTORS URGE COMPULSORY CONNECTION

Resolution Adopted at Meeting of Board in Chicago, March 14

BE IT RESOLVED, by the Board of Directors of the National Independent Telephone Association that it is the sense of this board that in all laws proposed to be enacted in the several states for the regulation or control of the telephone business, a provision shall be made giving the commission having charge of such utilities, power and authority to compel the interchange of telephone service between different companies and to fix and establish the terms and conditions under which the same may be done.

BE IT FURTHER RESOLVED, That such laws shall contain a provision to the effect that any telephone company desiring to arrange for such interchange of business with any other telephone company shall have the right to compel such interchange of business under terms and conditions to be fixed by such commission.

BE IT FURTHER RESOLVED, That in any such legislation, a provision shall be made which will give to any telephone company the power of eminent domain if necessary to the acquirement of such right.

BE IT FURTHER RESOLVED, That the Board of Directors of this association recommends to the Independent telephone interests in the several states the procurement of such legislation, and pledges the support of this association to such effort.

BE IT FURTHER RESOLVED, That the officers of this association are hereby directed to render all reasonable assistance in this behalf.

ASSOCIATION RECOMMENDS CONTROL BY COMMISSION

Resolution Adopted at National Convention in Chicago, Feb. 8, 9, 10

BE IT RESOLVED, that this Association recognizes the tendency toward the regulation and general control of all public utilities by Commissions acting under authority of law, and we believe that the people have the right to protect themselves against injustice, oppression or inefficiency by reasonable and proper regulation of duties, service and rates of such corporations;

THEREFORE, we recommend to the State Associations, and to the members of this Association, that they assist the Legislatures of their respective states in the enactment of fair and reasonable public utilities legislation.

BE IT FURTHER RESOLVED, That this Association desires to place itself upon record as emphatically demanding the regulation and control of all public service corporation by duly empowered commissions. In those states where no commissions now exist, we favor the creation of a body with full power to regulate, control and fix rates; in those states where commissions have been created, we favor the strengthening of the law so as to fully meet the conditions in the telephone business. We believe that such commissions should have the power to not only fix a maximum rate to be charged, but also a minimum rate, to the end that competition be preserved against the reckless assaults of corporations that are able to recoup themselves elsewhere for the losses they sustain by reason of their destructive tactics where competition exists. We believe that such commissions should have the power to prevent preferences; to stop all discriminations as between individuals and as between communities; to fix and require the maintenance of standards of service; to order and to cause to be done those things that the public convenience and interest demand.

WHEREAS, certain ambiguities appear in the Interstate Commerce law as now written;

BE IT RESOLVED, that we demand of the Congress of the United States that such law be so amended as to vest the Interstate Commerce Commission with the same powers relative to interstate business as are herein recommended for state legislation.

Mississippi Independents Report to State Commission.

Reports for the last quarter of last year were filed with the Railway Commission as follows: Home Telephone Co., Jackson, total receipts $3,307, expenses $1,448, net revenue, $1,821. The company has 600 telephones. Meridian Home Telephone Co., total receipts $7,175, expenses $3,037, net revenue $3,813. The company reports 1,191 telephones. Hattiesburg Home Telephone Co., total receipts $4,157, expenses, $1,844, net revenue $2,142, number of telephones 832.

Members of the "Albany Group" of Independent Companies Close Year with Good Showings.

The Albany Home (Independent) Telephone Co., Albany, N. Y., and other members of the so-called "Albany group" of Independents, have issued statements of earnings and expenses for the year ended December 31, 1910. These show that the year just closed has been a prosperous one for the various concerns. The reports are as follows:

ALBANY HOME TELEPHONE CO.

Earnings—		
From rentals	$82,793.04	
From tolls	3,737.07	
Miscellaneous	2,497.28	
Gross earnings		$89,027.39
Expenses—		
Operating and maintenance expenses	$38,170.52	
Taxes	4,011.38	
Interest on bonds and other fixed charges	21,457.13	
Total expenses		$63,639.03
Net earnings		$25,388.36

The following directors were elected at the annual meeting: James Moore, T. Henry Dumary, Charles V. Mann, E. E. Cooley, Irving R. Coughtry, Howard Hendrickson, Eli M. Woodard, Richard Stephens, Charles M. Page, Irving N. Griswold, Theodore M. Brush, Frederick H. Sudro, W. E. Brooks, E. E. Williams and J. C. Hill. The directors elected: President, Howard Hendrickson; vice-president, Irving N. Griswold; secretary, George H. Rymers; treasurer, Ernest Schneider; manager, P. J. Fitzgerald.

CLINTON TELEPHONE CO., PLATTSBURGH.

Earnings—		
From rentals	$20,728.19	
From tolls	2,683.70	
Gross earnings		$23,411.89
Expenses—		
Operating and maintenance expenses	$ 9,821.46	
Taxes	1,009.83	
Interest on bonds and other fixed charges	6,022.71	
Total expenses		$16,854.00
Net earnings		$ 6,557.89

The stockholders elected the following directors: J. M. Wever, I. Merkel, T. M. Brush, Albert Sharron, I. H. Griswold, I. R. Coughtry, L. W. Hayes, B. S. Ramsay, E. M. Woodard, Howard Hendrickson, Geo. H. Rymers. The officers are: President, J. M. Wever; vice-president, I. H. Griswold; treasurer, I. Merkel; secretary, Albert Sharron.

ADIRONDACK HOME TELEPHONE CO., MALONE.

Earnings—		
From rentals	$32,393.35	
From tolls	4,963.37	
Gross earnings		$37,356.72
Expenses—		
Operating and maintenance expenses	$18,099.61	
Taxes	1,370.72	
Interest on bonds and other fixed charges	8,169.99	
Total expenses		$27,640.32
Net earnings		$ 9,716.40

The following were elected directors for the ensuing year: N. M. Marshall, John R. Weston, S. D. Benjamin, I. R. Coughtry, G. H. Rymers, C. W. Breed, E. M. Woodard, T. M. Brush, W. D. Manley, E. M. Perkins, R. L. Sisson, John Bird, I. H. Griswold, J. W. Kissane The directors elected officers as below: President, N. M. Marshall; vice-president, I. H. Griswold; treasurer, J. R. Weston; secretary, I. R. Coughtry.

SCHENECTADY HOME TELEPHONE CO.

Earnings—		
From rentals	$48,420.18	
From tolls	2,402.00	
Miscellaneous	1,309.56	
Gross earnings		$52,131.74
Expenses—		
Operating and maintenance expenses	$23,318.03	
Taxes	2,390.07	
Bond interest and other fixed charges	14,787.52	
Total expenses		$40,495.62
Net earnings		$11,636.12

New York Public Service Commission Approves Several Mergers and Disposes of Other Cases.

The New York Public Service Commission has dismissed the joint petition of the Amsterdam Automatic Telephone Co. and the New York Telephone Co. for the approval of the transfer of the real estate, plant, and property of the Amsterdam company to the New York Bell. The commission held that it has no jurisdiction in the matter and can pass only upon the question of the transfer of the franchise of one company to the other.

The commission has approved of the transfer by the New York Telephone Co. to the Otsego & Delaware Telephone Co. of certain franchises or rights of the Central New York (Bell) Telephone & Telegraph Co., assigned to the New York (Bell) Telephone Co., in the city of Oneonta, villages of Unadilla, Laurens, Cooperstown and Richfield Springs, in the country of Otsego, and village of Walton, in the county of Delaware. The sum of $98,000 was paid for the property and rights conveyed. The commission holds that its approval of the transfer of the physical properties was not required by the public service commissions law, and has dismissed the joint petition of these companies so far as it relates to the approval of the transfer of the physical properties.

The commission also approved the transfer by the New York Telephone Co. to the Allegany County Telephone Co. of franchises or rights granted to the New York & Pennsylvania Telephone & Telegraph Co. by the board of trustees of the villages of Wellsville and Andover.

The transfer by merger to the New York Telephone Co. of all the property and rights of the Trumansburg Citizens' Telephone Co., Trumansburg, Tompkins county, has been approved.

The commission has also authorized the transfer by merger to the New York Telephone Co. of all the property and rights of the Jefferson County Telephone Co., of Watertown.

The Public Service Commission has received a complaint from the village officials of Lyons, directed against the Wayne Telephone Co., on account of the raise in rates made in that village on March 1. Up to that time the rate had been $15 a year for residences and $18 for office or business places. The rate for office and business houses has been raised to $24 for 4-party line, $27 for 2-party line and $30 for single party line. The complaint has been served upon the company and an answer required on April 15.

Plan Strong Fight Against Proposed Rochester-Bell Deal

Announcement That Bell Has Arranged to Take Over Rochester Group Rouses Opposition in Every Quarter—Local Mass Meetings Called—Press Unanimously Condemns Proceeding—National Association to Support New York Independents in Legal Preventative Measures

The Public Service Commission of New York has been asked to authorize a transaction whereby the majority stock outstanding of the Rochester Telephone Co., Rochester, N. Y., together with that of the Syracuse, Utica and other affiliated concerns, shall be transferred to the Friendship Telephone Co., of Syracuse, a subsidary of the New York (Bell) Telephone Co.

The companies involved in the deal are the Rochester Telephone Co., the Rochester, Syracuse & Utica Telephone Co. and the Utica Home Telephone Co., comprising the system of Independent telephone lines operating in Rochester, Syracuse, Utica, Canandaigua, Brockport, Weedsport, Baldwinsville, Rome, Clinton, Herkimer, Ilion, Mohawk, Frankfort and surrounding territory.

The negotiations, it is said, have been under way for several months between George R. Fuller, president of the Rochester company, and H. F. Stevens, of Syracuse, president of the Friendship company. Circular notice to the holders of the securities of the several companies involved, stating the terms of purchase, will be mailed in a few days. It it stated that the deal involves payments in cash to security holders of more than two and a half million dollars.

The proceedings, if carried to a culmination, would eliminate competition over a large and important section of territory in New York state. That this can be done is regarded by telephone men familiar with the circumstances as highly improbable.

In the first place, it is believed that any attempt to take over and merge the competing telephone properties involved would constitute a violation of the Donnelly state anti-trust law. This law was successfully invoked by the Attorney General in 1907, when the Bell Telephone Co. made its first public effort to acquire the same Independent plants and the Stromberg-Carlson Telephone Mfg. Co. In the face of this opposition, negotiations were broken off.

Entirely apart from this feature of the proposed merger, however, although held to be equally prohibitive of it, is the fact that 51 per cent of the stock of the Rochester Telephone Co. is pooled in the hands of three trustees. This agreement was entered into in April, 1900, for the express purpose of preventing the Bell from acquiring control of the Independent company, and to offer absolute assurance to the public on this particular point. The pooling agreement does not expire until 1920.

The men who hold in trust the controlling stock interest in the Rochester company are Edward Bausch, William S. Morse and Harold P. Brewster. It is not clear in what manner these trustees propose to release themselves from the obligation assumed eleven years ago.

That the deal will be allowed to proceed without spirited opposition on the part of the other Independents in New York state is, of course, out of the question. Preparations have already been made, it is understood, to bring such legal action as may be necessary to prevent the absorption of the so-called Rochester group. In this action, the New York Independents will have the solid support of the National Independent Telephone Association, as is shown by the resolution adopted at the meeting of the board of directors of that organization, held in Chicago this week, and which resolution is printed in full elsewhere in this issue of TELEPHONY.

It is not known at this time just what attitude the office of the New York Attorney General will take toward the matter, but in view of the stand taken in 1907, and the fact that the Donnelly law is still operative, it is regarded as inconceivable that repressive measures will not be promptly announced.

The clause in the trust agreement declaring the reason for trusteeing a majority of the Rochester company's stock reads as follows:

> WHEREAS, It is deemed important for the protection of the bondholders of a possible minority of stockholders that at least a majority of the stock shall, until maturity of the bonds, be voted by trustees appointed by the stockholders for that purpose, in order that the control of the corporation and of its business and property shall not pass to the Bell Telephone Co., or to any other corporation which may become a competitor.

How the Rochester "Herald" Views the Situation.

Besides this plain declaration of purpose to safeguard the future of the company, the men instrumental in securing the adoption of the foregoing resolution caused the following to be incorporated in the franchise of the Rochester company:

> This franchise shall not be transferred to any competing corporation now in existence, including the Bell Telephone Co., of Buffalo, N. Y., the American Bell Telephone Co., or any of its lessees or branches, or to any corporation that may be formed by the consolidation or merging of said existing corporations, nor shall it be sold or transferred to any new corporation that may be hereafter formed, unless the same shall continue to be used by said new corporation in competition with the Bell Telephone Co., or any of its lessees or branches, or any other company doing

business in said city. Upon failure at any time to live up to and observe the terms of this clause of the franchise, all rights granted by the franchise will cease and determine at the option of the City Council.

It is pointed out that the Bell company, should it secure control of the Independent, would be willing to relinquish the franchise and operate the merged properties under its own rights, and this does not tend to lessen the public resentment. It is assumed generally that the transaction would result in very much higher rates, and, more than probably, in a constantly deteriorating quality of service. This is the frankly expressed conclusion of the local press, which is vigorously airing the whole proposition and arousing sentiment against it.

Mayor Edgerton asserts that if any contract between the Rochester Telephone Co. and the city is violated by the proposed sale to the Bell, the full power of the municipality will be exercised to stop the transfer.

"I do not know what is proposed," said the mayor, "aside from what has appeared in the newspapers, nor have I had any legal opinion from the Corporation Counsel as to the rights of the city. I have no hesitation in saying, however, that the Rochester Telephone Co. must live up to its contract with the city, and that every effort will be made by the administration to prevent a violation of its contract, if such violation is attempted."

Rochester business men and telephone users have already shown their temper in a situation which bears a strong resemblance to the one anticipated. This was on the occasion of the famous "telephone strike" in 1886. The Bell then had a monopoly in Rochester and proposed to materially increase rates. Protests and mass meetings being without avail, practically every telephone user in Rochester hung up his receiver at a concerted signal at noon, November 20, there to remain untouched for eighteen months, when the Bell receded from its position. Bells were rung and whistles blown at the hour the strike commenced, and the whole affair was conducted with wonderful unanimity. It was a "popular uprising" in every sense of the word.

The feeling today is much as it was in 1886. There is a deep conviction that an attempt is being made to betray the public interest and this is cordially resented. Plans are even now under way for a mass meeting to protest against the proposed sale and it is certain that every effort will be made by the business men of the city to prevent the carrying out of the consolidation.

Considerable interest has been aroused regarding the probable position of the Stromberg-Carlson Telephone Mfg. Co. in the pending negotiations. The manufacturing company is closely affiliated with the operating telephone companies, and the belief appears to be general that it, too, will become Bell property if the deal goes through. In view of this fact, the accompanying letter from F. N. Kondolf, president of the Stromberg-Carlson company, is enlightening. Mr. Kondolf makes the unqualified assertion that his company is not a party to the deal in any way.

The official statement announcing the proposed consolidation of the telephone companies said:

The proposition has received the indorsement and recommendation of the board of directors of each company, and it is believed that the outcome of the negotiations will be generally satisfactory to the security holders.

It is intended, as soon as practicable, to ascertain the sentiment of the subscribers to both systems on the question of consolidating the service of all the companies, the purpose being to give a broad and comprehensive service and avoid the further duplication of the plant and the enormous waste incident to the continued operations of separate companies.

There are serious and complicated engineering difficulties to be overcome in bringing about a consolidation of the physical plants and the work of fitting the Independent property into that of the New York company will require many months of time.

When the service of all the companies is finally brought together, its scope will be tremendously enlarged, and over 20,000 subscribers' stations will be added to the Bell system, which are not now connected to it.

The officers and directors of the Rochester Telephone Co. are as follows: George R. Fuller, president; George F. Roth, vice-president; W. Roy McCanne, secretary and treasurer; Albrecht Vogt, H. Wheeler Davis, Gustave Erbe, Jacob Berling, J. Foster Warner, Edward W. Peck, Horace F. Atwood, Louis Griesheimer, Charles S. Rauber, J. Craig Powers, Fred W. Zoller, George Seager, John M. Lee, Bernard Dunn, Frank N. Kondolf, Carl F. Lomb and Fred C. Goodwin.

MR. KONDOLF DENIES STROMBERG-CARLSON PARTICIPATION IN DEAL

The newspapers are full of accounts of the negotiations which have been on for several months between Mr. Fuller, of the Rochester Telephone Company, and Mr. Stevens, of the Friendship Telephone Company, which is owned by the New York (Bell) Telephone Company, and which resulted in a proposition being submitted on March 10th, for the purchase of the bonds and stock of the Rochester, Syracuse and Utica telephone properties. These newspaper articles contain many conjectures as to whether or not the Stromberg-Carlson company is included in the deal, and it is for the purpose of presenting the facts to you clearly that this letter is written.

The proposition of the Friendship Telephone Company contemplates the purchase of the bonds and stock of the Rochester Telephone Company, the Onondaga Independent Telephone Company and the Utica Home Telephone Company—the operating companies in Rochester, Syracuse and Utica respectively—also the outstanding stock of the Rochester, Syracuse and Utica Telephone Company, a holding company owning a substantial interest in the Syracuse and Utica plants.

The proposition does not extend to, nor include, the stock of the Stromberg-Carlson Telephone Manufacturing Company. There are no negotiations on, of any kind whatever, for the sale of the Stromberg-Carlson company and none in contemplation. Our stock is owned by upwards of six hundred individuals, nearly all of whom reside in Rochester and St. Louis. The recent sales of Stromberg stock on the Rochester Stock Exchange do not exceed three hundred shares out of a total issue of thirty thousand shares.

The sale of these operating companies, as well as others, will no doubt ultimately affect the volume of business of the Stromberg-Carlson company as well as other manufacturing companies, but the Stromberg-Carlson company is strong financially, will be free from debt in the near future and expects to continue to supply the telephone requirements of its customers in future as efficiently as it has done in the past.—F. N. KONDOLF, President, Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

The Consolidated Telephone Company

Fairmont the Best City in the Best State—And There Are Reasons—A West Virginia Telephone Achievement

By J. C. Kelsey

When in doubt, lead trumps.

When in great peril, say your prayers.

When you owe money, pay it.

And when you want to hear nice things about a city—write to the Commercial Club!

There is one Commercial Club which is rather unique, though high-priced.

It has a sense of humor.

Its home is in Chicago.

And the members banquet often.

At the banquets they see beautiful things and say beautiful things about the "orneriest" city in the world.

They believe in Monopoly—and have endorsed the Bell Telephone Company, whose latest discovery is that they must not neglect depreciation.

They believe in one Gas company, whose reduction in rates is not noticed in the meters.

They even laud the street car service—the most villainous of its kind.

But the Fairmont Commercial Club can boast of something real. Here it is:

1.—Free factory sites.
2.—Five (5) cent gas.
3.—Cheap electric power.
4.—Abundant water.
5.—Labor conditions perfect.
6.—Proximity to markets.
7.—Healthy surroundings.

If your city has no Commercial Club, you have the foundation for one right now.

It is hard to tell what would have become of West Virginia if Quantrell had hanged the school teacher they caught around Lawrence, Kansas.

But Steve Elkins was not born to be hung.

He was born to rule West Virginia, and he did.

West Virginia, in the past, has been noted for being the prospective father-in-law of the great Italian "Flying Dutchman," called Duke de Abruzzi.

But something happened.

They wanted West Virginia money, but did not seem inclined to let the daughter of West Virginia eat at the family table.

Anyway, West Virginia got so mad about it that it elected two Democratic senators. And the match is off.

A city of 15,000 people, with such magnificent location, could not survive the old-fashioned treatment usually handed out by the Bell Telephone Co.

Some men in Fairmont wanted telephone communication with the Mannington oil fields.

This was back in 1895, and you know without saying it, that the Bell company refused to build this seventeen-mile line.

Think of it! Refused to run a single iron wire to an important point, because they wanted to be mean about it.

Accordingly, Captain Pritchard started to build it by himself.

Finally, in company with E. F. Hartley, C. E. Manley and Judge Raymond, they built the line.

Business was so good that they applied for franchises in Fairmont, Mannington, Clarksburg and Grafton.

At Grafton, the second Strowger switchboard was placed—at least it was among the early ones.

In August, 1901, the Consolidated company began official life.

It comprised the Grafton Telephone Co., the Clarksburg Telephone Co. and the Fairmont & Mannington Telephone Co.

Altogether there were 1,000 telephones.

In 1902, the great expansion took place, until the system covers Marion, Harrison, Taylor, Barbour, Randolph, Tucker and Preston counties.

The growth of the company has been steady.

The number of stations ran as follows:

November 1, 1903	2,142 telephones
November 1, 1904	2,277 telephones
November 1, 1905	2,342 telephones
November 1, 1906	2,535 telephones
November 1, 1907	2,580 telephones
November 1, 1908	3,406 telephones
November 1, 1909	3,679 telephones
November 1, 1910	4,275 telephones

The assets of the company are as follows:

Property	$329,553
Other items	9,813
Total	$339,366

The liabilities of the company stand:

Stock	$126,000
Bonds	60,000
Payables	119,147
Surplus	34,219
Total	$339,366

Total obligations per station, $71.00.

Please observe the low station obligation, especially since all the large plants are equipped with common battery exchanges.

Construction is excellent, and not a dollar of water appears anywhere.

The average quarterly receipts run:

Rentals	$19,076
Tolls	3,572
Switching and other fees	1,352
Total	$24,000

The average quarterly cost would be:

General	$ 2,309
Maintenance and operation	10,909
Other items	32
Total cost	$13,250

On a yearly basis for an average of 4,000 stations, the summary would be:

Earnings	$96,000
Cost operating percentage, 55	53,000
Net for reserves	$43,000
Reserve for reconstruction, etc.	16,000
Net for dividends (8 per cent).	$27,000

On an average telephone station basis for 4,000 stations, the following performance is made:

Gross	$24.00
Cost	13.25
Net for reconstruction reserves, etc.	$10.75
Reconstruction reserves	4.00
Net for dividends	$ 6.75

After a liberal operating expense account of $13.25 per station, and a $4.00 reserve account, the company earns $6.75 for dividend purposes, or 8 per cent.

The people of West Virginia are given best of service at $24 per year.

This includes toll and all expense to them.

The Bell Telephone Co. would have to charge $40 for the same service—and wants to charge $50.

Independent telephone service guarantees low charges to the public, practically one-half of what the "one grand and Universal System" would have to charge, if it held the field alone.

Bell interests have long howled about Independents ignoring depreciation.

Mr. Bernard Sunny, one of the astute of the inspired Bell crowd, in his testimony before the Chicago council, made some very funny statements:

"That need of depreciation was a recent discovery."

"I do not think any public utility ought to be criticised harshly for ignoring dividends."

"That the Chicago Telephone Co. would not exist in a few years if it did not pay dividends."

Mr. Sunny is awful wise, and I agree with him.

Especially on being harsh in criticising companies which ignore dividends.

Why not inform your press bureau?

For years, that holy organization has sent out attacks on Independent properties because they ignored depreciation.

And now the Bell is caught with the goods. The cat is of another color, now she has jumped out of the bag.

The Consolidated Telephone Co. does not pay a tax to any parent company.

It does not pay for fictitious services.

It is an honest institution and will survive long after Bell properties have gone under the hammer.

Fairmont may well be proud of her Independent telephone company!

And the general manager.

In 1902, a happy thought struck the spirits of the telephone movement.

They selected J. Walter Barnes as general manager.

Without question, he is one of the conspicuous telephone men in the United States.

In conventions and in all telephone councils his word is sought and heeded.

Such personalities in the Independent field account for its success.

Such a personality brings to the company the confidence of the people, because they can depend upon getting the best.

Foreign control is absolutely abhorrent, especially in such a personal matter as the telephone.

In fact, no business on earth requires so much tact, so much attention to detail, and yet such a necessary attention to great generalities.

It is not a heavenly inspired business, but one requiring some decent human attributes.

Accordingly, Fairmont may well be proud of Manley, Hartley and Barnes.

They have no statues on their public squares for their real liberators, but some day do not be surprised to find them.

Fairmont has but one railroad, the Baltimore & Ohio.

But it has a traction company and a great river—a river well kept, and boats have free lockage.

The Pennsylvania and the New York Central are surveying to this point.

Whatever the Pennsylvania railroad does, the Central is bound to do.

Just like Mary's little lamb.

Although a great mining country, with its attendant roughness, Fairmont has churches and other associations in great numbers.

Fairmont, among the West Virginia hills, has the "lofty aspirations that can only come to dwellers in the hill country."

"There is freedom and rugged hardship, openness of opportunity and sweet living."

You can hardly reconcile William Tell to a prairie country.

MORAL:—Fairmont is not satisfied with one railroad.

Waterville Company will not Connect with Bell.

It is understood that advances made by the New York (Bell) Telephone Co. to the Waterville (Independent) Telephone Co., having for their aim the withdrawal of the Bell from the local field and the connection of the Independent with the Bell long distance lines, have been declined by the Independent.

A Problem in Navigation

Proceedings and Papers, Nebraska Independent Convention

Report of Election and General Proceedings at Final Session—Abstracts of Papers on Engineering, Construction and Operating Topics—Speeches at the Banquet—Hearing Before Railroad Commission Brings Out Objections to Free County Service

The constructive work which the Nebraska Independent Telephone Association may do was the main topic of President C. J. Garlow in his convention address. He said, in part:

"We have fairly started on the road to proper organization and management. The work undertaken and hoped for was closer union and more business-like methods of operation. We have accomplished much but there is room for improvement.

"Some of the things to consider and remedy are:

"1. Simpler and more condensed form of bookkeeping for the smaller companies

"2. Uniform and adequate rates, based upon the class of service rendered.

"3. The abuse of free service between exchanges.

"4. The relation of the Association to the 'System' and that of each to the telephone people in general. Its defects and needed changes.

"5. What laws we believe ought to be enacted to protect and preserve our interests.

"Accounts first recommended under the Railway Commission rules are too complicated for the great bulk of the telephone companies, and instead of helping the small operator to keep a brief but accurate account of his business, confused and discouraged many. This should be remedied.

"One of the greatest evils of our business has, from the beginning, been our haphazard and in many cases ridiculously low rental charge. If the farmer has corn, wheat and hogs for sale, he does his best to get the top price; if the laborer goes out to sell his services, he gets the best wages possible and the price is usually based on the class of service. When will we wake up to the fact that we must treat the telephone investment and the telephone business the same as we do all other business matters and investments? Let us resolve to build nothing but good standard lines, render good service, and to charge a rate that will assure a reasonable income upon the investment.

"Free service is dishonest, and an imposition on every investor and patron who wants a return upon his investment or desires good service.

"The public thinks a lot more of us when we give good service and charge for it the same as we would for any other commodity and are more liable to take our service.

"The Railway Commission should take a hand in protecting both the investor and patron against the nuisance of free and unlimited service to whatever busybody may determine to monopolize a line.

"Two years ago we recommended in our annual message the incorporation of a system which would have back of it some legal standing. We have succeeded in getting most of the Association members to join.

"Many small and isolated companies have been desirous of associating in both a friendly and business way with us, so far as possible, but because they had been forced to connect with the Bell Company, we said to them, 'You cannot get into our circle while you are connected with the Bell Company.' Naturally, every Independent company is opposed to the Bell Company and would, if possible, without injury to the public or their patrons, cut loose. These Independent companies are our natural friends and we should give them shelter and have their good will, and as fast as possible take care of them.

"We are now confronted with a lot of bills, and I am satisfied the legislature wants to be fair with us and will practically follow our wish, but do we know what we need?

"There are but two vital questions for us to answer:

"1. Physical connection, and

"2. The right to merge or to be bought or to buy our recognized competitor.

"Physical connection is a public demand, and sooner or later it will come. Personally, I would not object to the passage of a law permitting physical connection, upon a proper showing to the Railway Commission, but I do not like a compulsory act.

"As to the right to buy or sell to each other or to our recognized competitor, I do not believe any law can be passed that will eventually prohibit it, notwithstanding the pending cases. The law passed has drawn the line only between the Bell company and the Independents, but suppose the public demands—and would be benefited by the use of but one system in a given place,—would it not be against public interest for a court or legislature to say a known evil should be fostered?

"I am not afraid of any law looking to the right to sell or buy, providing the matter is left to the judgment of a Railway Commission."

During the Question Box session there was an interesting discussion of the life of dry batteries. It was agreed that the principal obstacle to long life is the "rubbering" habit.

Hon. D. L. Love, mayor of Lincoln, in his welcoming address, said the capital "is proud to be the center of the great Independent telephone system."

Advertising Long Distance Business.

Mr. W. H. Daubendiek, De Witt, read a paper advocating the use of newspaper articles to educate the public in the telephone business. It can be made a great help in raising rates and other work. Publishing a semi-annual statement shows subscribers that it costs money to give service. Advertising will help bring in long distance business and raise capital.

J. H. Ritchie, Beaver Crossing, humorously advocated going after slow-pay subscribers with a gun. The worst kickers are the poorest payers. Mr. Ritchie recommends collecting monthly in advance, and disconnecting for non-payment. To do this the collector must never skip a date or an appointment.

Mr. J. M. Bell, of the York County Telephone Co., read a paper on "Securing Money Locally," which will be printed in a future issue.

The question of free county service was taken up at length. An increased blanket rate leads to dead-heading and unequal distribution of costs in proportion to service, and was condemned by a vote of the convention.

It Pays to Use the Motorcycle.

Mr. C. W. Bartlett, Fairbury, gave his experience with a second-hand motorcycle costing $150, and $32 for repairs in seven months, of which at least one-third was for replacement of parts partly worn out at time of purchase. In seven months the machine ran 5,000 miles, using a little less than two gallons of gasoline per 100 miles. The machine gives good satisfaction on bad, hilly roads. Said Mr. Bartlett:

"One day last fall at a time when conditions were especially favorable, we started our trouble man from the office at 8 a. m. on farm line troubles in which several instrument repairs had to be made, and some line testing done. He covered forty miles, made all tests and repairs and returned to Fairbury for dinner. At one o'clock he started out in another direction on farm line troubles, covered twenty-five miles and returned at 2:45 p. m. At 3:00 o'clock he started out on a case of toll line trouble between Fairbury and Beatrice, made several tests, covered forty-four miles and returned to Fairbury at 6:45 p. m., having covered a total of 109 miles in less than ten nours and made all repairs. The cost for gasoline was about 30 cents and our man's time, $2.50.

"It would have taken a man and team at least three days to have covered the same territory and do the same work, and at a cost of not less than $7.50 for livery and $7.50 for labor, making a total of $15.00, as against $2.80 with the motorcycle.

"We are willing to admit that this was an exceptional case of good work, but will insist that almost as good records have been made day after day with the same machine. One of the most important things to be taken into consideration in case of toll line troubles is to get it repaired, and that quickly. If we had not had the motorcycle on that particular day at three o'clock, it is possible that the trouble would not have been found and repaired until late the following morning, and as this case of trouble was one of our most important toll lines, it is possible that quite a loss of business would have followed the delay in making repairs.

"Last week we made eight trips, covering 112 miles, and used two gallons of gasoline, 30 cents, sixteen hours of time at 25 cents, $4.00, total $4.30. Average length of time per trip, two hours. Average mileage per trip, 14 miles.

"If the same had been done with livery, it would have taken eight one-half-day trips at $1.50, total $12.00; thirty hours' time at 25 cents, $7.50; total, $19.50; a saving of $15.20 and the satisfaction of having made repairs quickly."

Good care must be given a machine. It should not be run above 40 miles an hour, and 30 miles is usually fast enough.

In addition to its use by troublemen, it helps in installing, collecting, general inspections and emergency work.

In a paper on the "Proper Adjustment of Pole Changers and Harmonic Converters," Mr. C. L. Walker stated that the Warner pole changer, installed properly, is subject to very little trouble. If the contact brush that runs the vibrator wears, it can be readjusted so as to make the contact at another point on the platinum, and this can be repeated until the platinum is all worn out. Flashing at the contact point may be due to a short circuit of the condenser, which must be removed at once, otherwise the ringing batteries will soon be run down.

Pole changer batteries should be inspected carefully at least once a week, and all cells showing a low discharge should be replaced, as should also cells showing moist places in their pasteboard coverings.

In harmonic converters the correct speed of the vibrator must be maintained for good results. If a test bell does not respond, touching the tapper of the bell when ringing current is applied may set it in motion. In this case the vibrator is running too fast to ring the bell. If it is not set in motion, the vibrator is running too slow. The speed can be increased or decreased by simply lowering or raising the weight on the end of the armature.

The machine should be so adjusted that the contacts will not break except occasionally on a very heavy line.

"The continual opening and closing of circuit at the contacts will in time cause the positive contact to become blackened and to lose platinum, and the negative contact to be whitened and to receive a deposit of the platinum from the positive contact. This causes the contacts to become rough and pitted, which will cause sparking and wear on the platinum. The best way to prevent this is by reversing the connection of the operating battery periodically so that the current will flow in a reverse direction and thereby redeposit the platinum which is electrically eaten away from the positive contacts and deposited on the negative contacts.

"As soon as the surface of the contacts becomes roughened, it is time to file or dress them smooth. This may be necessary once a week. By properly wiring the battery so as to allow its connection to the harmonic converter to be reversed at least once in every twenty-four hours, it will be possible to cause the platinum to deposit in opposite directions and partially overcome this trouble."

Uses of Concrete in Telephone Work.

Mr. Mark T. Castor, superintendent, Lincoln Telephone & Telegraph Co., suggested that the uses of concrete comprise the following: concrete anchors, footings under butts of poles and stubs, around butts of poles to give additional resistance against side strains and protect the poles from decay, reinforced concrete for mending poles which have become weakened by decay at the ground line, and reinforced concrete poles.

Under the present conditions the cost problem due to the weight of concrete makes an installation of concrete poles require a careful estimate.

Anchors can be more satisfactorily moulded in the earth, as a rule, where the soil is free from stones and other obstructions, and not liable to cave in. Otherwise the anchor should be made in a mould on the surface of the ground. The anchors may be reinforced with heavy field fencing, although ungalvanized metal is superior. Wood should never be used in reinforcing. Reinforcing metal should always be placed at least one inch from the outer surface of the concrete.

Concrete may be placed around butts of poles and held in place until it ripens by flexible metal rings.

Mr. Castor commented favorably on a patented system of surrounding partially decayed pole butts with reinforced concrete, which is marketed by a Pittsburg firm.

Mr. Sten Anderson, of the engineering department of the Lincoln Telephone & Telegraph Co., read a very interesting paper on the development study. He described the drawing of maps and their lettering to show the prospects, making a house count, laying out the plant, etc.

Regarding distribution, he said: "In the matter of distribution, the best practice is to plan the distribution so that at any time during the development period one may only need to string a cable to a junction point and at this point cut off laterals from old main cable, splicing these on to the relief cable, rather than stringing a large cable and distributing same for a number of blocks, and finally, when more capacity is needed, find that it may require a repetition of the original process for relief.

"The placing of cable in alleys, and so arranged that the the main cable forms a central point of distribution through-laterals off the main cable run but a short distance, while out its length, seems to be a very common practice. In general, street leads are to be avoided except for trunking purposes. As has been said, local conditions alter every plan and the best method to follow is to lay out the principal leads over one route, make an estimate as to cost, repeat the process for another route, using same central point, a trial or two will solve any troublesome case and show the economy of one route over another."

The map used in the development study should have ad-

ditions from year to year noted upon it and thus form a record of the physical condition of the plant.

What a Telephone Directory Should Contain.

Mr. D. T. Cook advocated the inclusion of two classes of information to bring the book into more general use, by making it a reference book and guide for citizens and occasional visitors. Under information of local interest might be included a complete street guide, location of municipal and public buildings, opening and closing hours of the post office, etc.

Advertising in the book is a valuable feature. Good prospects for permanent space are cab or transfer companies, hotels, theatres, railroads, etc. "The prime advertising value of the telephone book is that it is always near a telephone in the home, the office, hotel, or the corner drug store. Side by side with the means of advertising is the means of making a sale," said James H. Collins in a recent article.

Maintenance and Transpositions of Toll and Farm Lines.

Mr. T. C. Rice, who is toll wire chief of the Lincoln Telephone & Telegraph Co., emphasized the value of cleanly built lines as the first requisite for economical maintenance. Any needed repairs observed by inspectors when out on the line should be made at once to save any future trips and loss of service. Permanent repairs should be made in every case. Special efforts should be made to clear trouble in the shortest possible time.

It is a great advantage to have facilities for testing. A Wheatstone bridge or a high resistance voltmeter is required for such testing. Records in the office should show normal readings on all lines, and also resistance measurements to all cable terminals and test poles or test stations; then the trouble can be located by comparing the measurement with the normal reading.

Phantom circuits and composite and simplex telegraph lines require most careful maintenance. The use of sleeves for joints has done away with a great deal of the risk of loose connections.

It is a good plan to call a different subscriber on each farm line each morning to ascertain that the lines are in good working condition. Phantom circuits are now used so extensively that it is well to figure on their being a part of any lead, and to make transpositions on the initial installation in such a manner that the phantom can be installed at the proper time at a minimum expense.

"One way to remedy induction is to divide the length of the disturbing line into sections, each section to be determined by any change in this circuit, for instance, where the distance between telephone line and light circuit change, or where a lamp is placed. Then transpose all telephone lines at the center of these sections. It is important that all lines be transposed, because if otherwise the transpositions to prevent cross talk will be disregarded and the balance of the lines will be lost. Cross talk will result.

"In very bad cases of light induction it is sometimes advantageous to transpose the disturbing line. This will help, but will not do away entirely with the induction. It is best not to depend upon this method.

"Where the disturbing line parallels the telephone lead for a short distance only, the induction can be overcome by cutting a twisted pair in on the telephone lines."

During the Thursday afternoon session Franklin H. Reed, of Telephony, Chicago, was the first speaker on the program, his subject being "Co-operation in the Movement." Mr. Reed traced briefly the growth of the Independent telephone system of this country and referred to the excellent showing of Independent telephone development as shown by the recent census reports of the government, and their remarkable success in financing a gigantic industry from local sources. He urged the necessity of unity and co-operation between the various portions of the Independent telephone organizations in this and other states, and for co-operation in the internal affairs of each company.

A paper by C. E. Thew, of Norfolk, Nebraska, on "Possible Earnings from Electric Clocks and other By-products," was read and listened to with interest. C. P Russell, of Lincoln, explained the details of an accounting system, which has been specially devised by him to simplify telephone bookkeeping.

Election of Officers.

The nominating committee reported the following names for the officers and executive committee of the Nebraska Independent Telephone Association to serve during the coming year:

C J. Garlow, Columbus, president.
B. H. Paine, Grand Island, vice-president.
L. E. Hurtz, Lincoln, secretary-treasurer.

Executive Committee.

E. E. Canfield, Norman; C. C. Deering, Omaha; F. H. Woods, Lincoln; C. J. Garlow, Columbus; S. B. Lyman, Hastings; C. W. Bartlett, Fairbury; B. H. Paine, Grand Island.

The report of the nominating committee was unanimously adopted by the convention and the above named officers and directors declared duly elected.

This is the fourth time that C. J. Garlow has been elected president of the Association.

The resolution committee then made its report, offering a resolution endorsing TELEPHONY, expressing the appreciation of the industry for such an able journal and urging that all give it their support. A resolution endorsing the principle of regulation of public utilities and urging that the power of the State Railroad Commission be enlarged was also unanimously adopted.

Governor of Nebraska Speaks at Banquet of Nebraska Independent Telephone Association.

The principal feature of the banquet was the speech of Gov. Chester A. Aldrich. Governor Aldrich said that there had been no real competition in the railroad business for many years past, that the railroad companies divided the territory and each company developed its own particular field. Where business enterprises attained such tremendous size as had the railroad and telephone companies it seemed natural for them to enter into combinations and mergers. Where this helped to serve the people, he intimated that in his personal opinion there would be no objection on the part of the people at large. He emphasized the importance of regulating public utilities by commissions and thought that the interests of the people and of the public utilities could best be served by strict regulation and by the enforcement of laws enacted to govern both.

C. L. Richards, of Hebron, touched upon the merger idea before the convention and said the changed conditions in the telephone business made it imperative to look at this matter in a sensible, business manner. He thought that the Independent interests had nothing to fear.

Lysle I. Abbott, of Omaha, and Bayard Paine, of Grand Island, created much amusement by their humorous discussion of technical points. Shortly after Mr. Abbott entered the telephone field his superintendent asked one day if the batteries should be charged. "Why charge them?" said Mr. Abbott. "Pay for them; we have plenty of money." Mr. Paine compared his talk, following and preceding those of two other speakers, to a phantom circuit; the speeches of the gentlemen preceding and following him being the physicals. A phantom circuit being composed of nothing but pure air, according to his understanding, he thought that his speech might be properly termed a "phantom." He also created much amusement by the division of tele-

phone subscribers into three classes—past, present and future.

Mr. Henry T. Clarke, Jr., of the State Railroad Commission, made a short talk in which he urged the necessity of co-operation between the commission and the telephone companies. Reports to the commission must be accurate and made in good faith. If not so, no one was so greatly injured as the telephone company at fault.

Mr. George Lyon, of Nelson, a familiar figure at past Nebraska convention banquets, recited two poems and aided by Miss Gwendolyn Garlow, vocalist, got the thoughts of those present off the telephone business for a few minutes.

Col. C. J. Bills, one of the pioneers in the Independent field, presided as toastmaster.

Discussion on Added Exchange or County Service Before Nebraska State Railway Commission, March 10, 1911.

It having been brought to the attention of the Commission that the rates, rules and regulations governing the matter of added exchange or county service by the different telephone companies in Nebraska, were widely different, a public hearing on this matter was arranged for, by the Commission.

The Commission desired to obtain the consensus of opinion of the telephone companies of the State and to this end asked the following questions:

1. Should such service be covered by a blanket rate or toll rate, or either?
2. If a blanket rate is adopted, what rate will be compensatory under ordinary or given conditions?
3. Under a blanket rate, should the subscriber or the telephone be considered the unit of service?
4. If the telephone is adopted as the unit of service, how may the company best protect itself from the abuse of the added exchange or county privilege by persons not entitled to the same?

Representatives of various mutual telephone companies began the discussion. These companies contended that they were mutual or co-operative organizations, their sole object being to give the largest amount of service to their members at the lowest possible cost. They said that their organizations were as logical and of as great a benefit to the people as are co-operative buying associations and other similar organizations. This being true, they insisted that they be allowed to give free service wherever possible and to furnish their members service between various exchanges on their systems without being required to charge a toll or even an added blanket rate.

They said that in the consideration of these questions by the Commission a distinct line should be drawn between mutual and commercial companies and that the same rulings should not be applied to both. It was admitted that their methods of doing business frequently worked a hardship on companies organized for profit

The great majority of the commercial companies represented contended that the law implied that all telephone companies were common carriers and must be treated alike. No service could be furnished, in the last analysis, unless the public paid for it, and it was the duty of the Commission to see that no discriminations were allowed. Many of them were now charging blanket rates or giving free service between various exchanges but this condition was not right and in most cases had been forced upon them by cut-throat competition. Representatives of the Nebraska (Bell) Telephone Co. argued that a correct fundamental rate for telephone service must be a message rate and that otherwise a certain amount of discrimination would always exist. This being a self-evident argument, if a toll or message rate was charged for connection between any two exchanges in different towns a close approach to an ideal scheme was made. Practically all the commercial companies represented agreed that a toll or message rate was the proper basis and should be enforced by the Commission.

If a blanket rate were in effect for service between any two towns, the only practical basis was to consider the telephone the unit of service. This plan was, however, greatly abused by the public and several amusing instances of non-subscribers walking blocks to use a blanket rate telephone were recited. Where farmers were connected to different exchanges, although near neighbors, it was agreed that a toll rate might work a hardship. No one offered a solution to this difficulty.

The Commission expressed no opinion, and while it is doubtful whether it will render any formal decision, its future rulings on such matters are awaited with great interest by all telephone companies in Nebraska.

Telephone Fire Alarms May Save Millions to the Country —An Important Address Before Rochester Engineers.

At the March meeting of the Engineering Society of Rochester, N. Y., Dr. B. B. Clark, president of the Denio General Electric Co., gave an address on fire risks and fire prevention. Among other things, he said:

"An average loss for the last five years of $250,000,000 means a loss of about $30,000 for each hour. One thousand two hundred and sixty millions of dollars in the products of human toil has been wiped out of existence in the brief space of five years. The values represented by the fire waste would more than pay the stock dividends of all the railroads.

"An electric circuit which is used for fire-alarm purposes must satisfy three conditions: First, it must be maintained in perfect condition; second, not easy to get out of order; third, give instant notice of any conditions which would interfere with its workings, not only to the central operator, but also to the person depending on that circuit for fire protection.

"Telephone circuits satisfy these conditions as nearly as possible with any system of wires. First, they are maintained in as perfect condition as possible by a number of experienced men constantly on duty; second, all conditions which would cause trouble are eliminated in so far as it is possible to foresee them, thus reducing the chance of interruption of service to a minimum.

"As the apparatus at the central telephone office is very sensitive to any disturbance on the line, those in charge are instantly notified of any unusual condition and are thus enabled to repair it without loss of time. These advantages would be difficult to obtain in any system of wires used for fire-alarm purposes exclusively, without in many instances making the cost prohibitive."

Atlanta Telephone & Telegraph Company Adds Over 400 New Subscribers in Thirty Days.

The Atlanta Phone Register, a bulletin published monthly by the Atlanta (Ga.) Telephone & Telegraph Co., as a supplement to that company's directory, shows that within the thirty days succeeding the publication of the previous number, 421 new subscribers were added to the list.

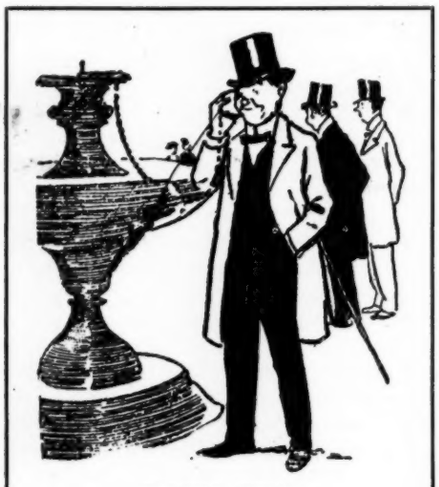
The inter-communicating and private branch exchange business seems to be very good for this company. The Register says: "New orders for inter-communicating and private branch systems continue to come in, and a large part of our force is busy installing those that have already been ordered. There is no better evidence of the fact that Atlanta is a modern and metropolitan city and fully equipped with all of the latest essentials for the facilitating of modern commercial relations."

Sparks from the Trouble Desk

General Manager A. S. Hibbard, of the Chicago Telephone Co., furnishes the following letter to readers of TELEPHONY with his personal guarantee that it is copied letter for letter from an actual communication received by his company:

"Dear Sir:

"Latest month Im tell it the manager I no want the telling-



WRONG WIRE.
Jones telephones that he will be kept late at the office.

foam no more. Before she had it the tellingfoam I have some repairing men from Elgin for dinners or supper, but she is not satisfaction with the too much little salarie from the company she take the repairing men for boarding, so I make it no cent no more.

"Latest month I pay $2 at charges and I owing only 45. I tell her if some peoples tellingfoam from hotel let them know it. Now she coming with 50c toll for what it is I dont know. I want no paid it to take the tellingfoam out or shut open the connectioning. I wont no paid this month anyhow.

"I notification her 16 days.

"It is better you look in the matter. I no sure no body in mine house tellingfoam this month.

"I never use him.

"I tink me minselluf this a robber and a tief business. Anny how it makes me a damn nonsense and troubelings. Ven der pell tinkles I take de hook off der nail and I listen to none of my business. Some neighbors foolishness women telling quvestions about a new sunbonnet she yust bought but dident pay for it yet or maybe else one says for a hollufah hour 'I dink its going to rain Mrs. Smith is going to soon have it a new Gas stove mit leaks in it. I dont know vich aindt it.'

"Dere is too much expenses and rubbernecks connected mit tellingfoams. Come vid a ax and unscrew it from de vall off or I kick it in der faces. I am shust mad mit angriness about der whole damn bizziness.

"Yours truly, Good day."

A young man operating a lunch counter in a saloon, in company with some of the other bartenders and help, "bunked" over the saloon.

With summer weather came a healthy crop of bugs.

The young man's mother lived on a rural telephone line, and baked the pies used at the lunch counter.

Each morning the mother called the son to find how many pies were wanted for the day.

The following conversation, as overheard by the operator at the little switchboard, revealed the "hot time" upstairs.

"Hello, is this Central! Give me Garrison's saloon, please."

"Hello."

"Hello, is this Garrison's saloon?"

"Yes."

"Is Willy up yet?"

"Yes, but he is upstairs now."

"Is this Will talking?"

"No, this is Charlie."

"How about the pies. Can Willie come to the telephone?"

"He is straightening up things upstairs? His bed burned up last night." (Here a pause of consternation from the mother).

"Well—tell Willy to be more careful of the gas."

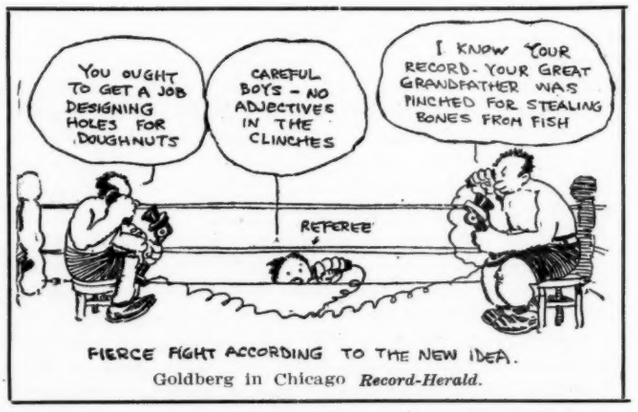
"It was not the gas. He put some stuff on the bed for the bugs. Then he lit a cigar, and the match set the stuff afire, and burned up bugs, bed and all. But he wants all kinds of pies."

"Well! Well, that's all. Good by."

A woman called at the counter in the Commercial office to inquire as to the details of her contract. It was explained to her that she had a contract for 600 messages at $48 and one extension at $6. She asked that the $48 part of the contract be discontinued, leaving in the extension at $6, as she could hear just as well over the extension—showing the economical turn of the feminine mind.

One afternoon the armature of a drop connected to the line of a subscriber who lives near the exchange began to vibrate violently and kept moving continuously, so that the operator could not answer, says C. H. McKinney, manager of the Flagstaff (Arizona) Mutual Telephone Co. This looked so serious that the operator at once cut off the drop by inserting an open plug in the jack, and the troubleman hurried out to see if he could find a dynamo clinging to the wires, or some other equally active and pernicious source of mischief.

He followed the course of the line at a run, but reached the subscriber's premises without discovering any unusual


YOU OUGHT TO GET A JOB DESIGNING HOLES FOR DOUGHNUTS
CAREFUL BOYS - NO ADJECTIVES IN THE CLINCHES
I KNOW YOUR RECORD. YOUR GREAT GRANDFATHER WAS PINCHED FOR STEALING BONES FROM FISH
REFEREE

FIERCE FIGHT ACCORDING TO THE NEW IDEA.
Goldberg in Chicago *Record-Herald*.

condition. Arriving at the door he was unable for a time to attract attention, because the telephone bell was ringing so loud that the sound of the door bell was drowned out. At last, however, there came a pause in the ringing which was followed by the appearance of the lady of the house, perspiring and angry. When she recognized the telephone man she told him hotly that she had been "grinding" the telephone "just to get even with that 'Central' girl."

The Inspection and Testing of Telephone Wire and Cable*

An Extended Discussion of the Quality Requisites of High Grade Wire and Cable for Telephone Construction—Standard Tests and Purposes for Which They Are Applied—Why It Pays Operating Companies to Be Represented at the Factory, and Buy on Specifications

By Hugh T. Wreaks,
Secretary, The Wire Inspection Bureau

The operation of a telephone system involves, from the mechanical or engineering side, the use of a large variety and number of appliances, apparatus and material; all of these being grouped so as to form a large number of complex and interwoven circuits for the purpose of transmitting signals, both physical and vocal, by means of electric current.

I think it may be safely stated that each of these circuits is composed of more than 90 per cent of wire of one kind or another; and, therefore, that the efficiency of any telephone system and, to this extent, its success, depends very largely on the reliability of the wire used and how well this wire confines and protects the telephonic electric current passing over it.

There are several kinds and qualities of wire and cable used; those that I am familiar with being as follows:

Nos. 1, 2, 3, and 4 are all soft drawn copper.

1. Telephone cord.
2. Twisted pair inside wire.
3. Twisted pair bridle wire.
4. Pothead wire.

Nos. 5, 6 and 7 are all hard drawn copper.

5. Twisted pair outside wire.
6. Bare copper wire.
7. Weatherproof wire.
8. Copper-steel wire.
9. Weatherproof copper-steel wire.
10. Galvanized iron wire.
11. Lead covered paper cables.
12. Aerial cables, r. c. copper wire.

All of these wires, when bought by the American Telephone & Telegraph Co., Western Union Telegraph Co., United States Government and, presumably, when bought by various members of your association, are covered by specifications which go quite into detail as to various characteristics, tests and requirements to which these wires shall conform. These tests and requirements are passed upon, as a rule, at factories where the wire is made up, and almost invariably cause the rejection of a certain number of coils of such wire, which latter are known as culls. These culls frequently go to such purchasers as do not have their wire inspected.

Materials to Be Tested.

These tests are sometimes quite complicated and require an appreciable quantity of reliable and expensive apparatus and equipment. Though not infallible, if properly made they are a valuable guide to purchasers of wire. It might not be amiss to enumerate some of these tests and explain what they mean and how they can be interpreted. For convenience, I will group these tests as follows:

Tests on braid.

Tests on braid, on rubber insulation—ordinary grade, on rubber insulation—high grade, on copper wire—soft drawn, on copper wire—hard drawn, on tinning, on copper-steel wire, on galvanized iron wire, on lead-covered paper cables.

The braided covering on a wire serves two functions, which are not always appreciated. It adds strength to the wire, and should serve as a protector for, and prevent action of air on the compound or conductors underneath.

This means that when the braid is exposed to the atmosphere it should withstand temperatures varying from, say, 130 degrees F. to 0 degree F., without any deleterious effect on the braid itself or the preservative and air excluding compound with which it is saturated. The braid should be so saturated with a waxy or filling compound as to absorb but little moisture. Any braid which continuously absorbs appreciable moisture and then dries out will rot in a relatively short time. The braid should be strong and flexible enough to protect the conductor during ordinary process of handling, and if strong enough not to be injured in handling, it is likely to give a good account of itself in service. Unfortunately, the qualities here mentioned are not all consistent with one another. That is to say, those waxes which best exclude water may tend to stiffen the wire and crack the braid when bent, or if put into the braid at a temperature high enough to thoroughly saturate it, they may slightly char the braid fibre. Again, the waxes which best withstand high temperatures will not best withstand low temperaures, alhough of the two the former is, I believe, generally considered the most important. To cover these points properly requires specifications which give the best mean average on all points enumerated.

Tests of Braid.

No great amount of apparatus is required to make tests on braid, the high temperature being developed by a water jacket oven, and the low temperature by a freezing mixture. The moisture absorbing qualities are tested by carefully weighing selected samples on a good chemical balance before and after a twenty-four hour immersion in water, and the strength and flexibility of the braid are determined by a combination of bending and straining tests, together with comparison of the number of yarn ends and ply and size of cotton used in the braid.

The rubber insulation, both low and high grade, has been in the past and is even now, to a less extent, a bone of severe contention between purchasing agents and wire manufacturers. That is to say it is found difficult to so specify that the manufacture of a good compound will be protected against the competition of a poor compound. Yet much can be accomplished, even here, by proper specifications.

The characteristics of a good compound are high insulating qualities; long life, both physical and electrical; and sufficient strength to withstand, without damage, such handling as it will receive when being installed. The quality of strength is not so important here, especially when the insulation is covered by a braid, as the latter, if good, gives to the wire its requisite strength. There are, however, many engineers who claim that a relation exists between the electrical, physical and aging qualities of a rubber insulation, but we have made a great many experiments along these lines without discovering such relation.

As to tests: the apparatus for electrical tests on rubber insulation is quite expensive and cumbersome. First, it is

*Paper presented at National Independent convention, Chicago, February 8, 9, 10.

necessary to install large water tanks, together with necessary cranes and other apparatus for handling the coils and putting them in and removing them from the water, as well these electrical tests on rubber compounds are made on coils immersed in water. Transformers of ample capacity and capable of giving at least 3,000 volts and preferably 10,000 volts are needed, together with switchboards and other apparatus for the purpose of applying the necessary voltages so as to locate the weak spots, which either show up immediately or are observed when the insulation resistance is taken. The insulation resistance test requires a sensitive galvanometer, so mounted as to be free from vibration, together with the necessary scale, telescope, shunt, high resistance and batteries.

Three Tests for Compound.

The physical tests on ordinary grade insulation may be classified under three heads: hardness, flexibility and softness. The test for hardness requires no apparatus except a sharp knife and a little practice, and consists in carefully removing the braid and then wrapping the insulation on itself and seeing that no cracks develop in less than twenty-four hours. The test for flexibility consists in wrapping the insulated and braided wire, under tension, around a small mandrel immersed in water, and measuring by electrical tests the damage, if any, that has been done.

The tests for softness are made directly on the insulation and, by means of an electrical circuit and a scale, tell how many pounds pressure it takes for a given tool edge to cut through the insulation.

The physical tests on high grade insulation are generally in the nature of a stretch and return test, say, from 2 in. to 6 in. and return in one minute to 2¼ in., then to stretch without breaking to 9 in. They also call for a breaking strain of, say, 800 lbs. per square inch.

Also, the specifications for high grade rubber insulation generally call for chemical tests, these being in the nature of identification tests. These also serve a useful purpose, but, at times, from their delicate and intricate nature, are liable to be misleading. As yet, no chemical tests of value have been developed for the ordinary grade rubber compounds.

The tests for both soft and hard drawn copper are, in the main, alike in kind but very different in degree. The elongation test and breaking strength test are called for, for both, and a twisting test is called for for soft copper. The hard copper again, must be carefully observed for splinters, as, although these are not serious from an electrical point of view, they are very dangerous to the linemen who handle the wire.

In making tests for strength and elongation, a tensile machine is required which, for hard drawn wire, has to register quite high breaking strains.

The twisting test on soft drawn wire, except on large sizes, needs only a simple apparatus. Conductivity tests are also specified for both soft and hard drawn wire, although for the former they are of less importance, as practically all copper when soft has a conductivity above specifications. When hardened during annealing, baser metals may be used which would appreciably lower the conductivity.

Resistance of Copper Important.

The resistance of the copper is, of course, important and is included in conductivity measurements, the two together helping to check up the lengths of the coils and the amount of a given order.

Of course the quantity of copper cannot be determined without a knowledge of its cross sections and measurements with micrometer calipers. These measurements are also essential to properly check up insulations and braids.

The tinning of wire is put on in order to preserve the copper, presumably, against any action from free sulphur or oxidizing agents in the rubber compound, and also to protect the copper from the air in case the braid and compound on the wire are damaged in spots. This latter occurrence is, however, not anticipated and will require a tinning much heavier than is generally used. The tinning of copper wire is not as simple an operation as would at first appear, as the tin must be put on before the wire is insulated and must, therefore, form a flexible coating and one not likely to be damaged in the handling before insulating and in this process itself. Obviously, too thick a coating of tin would be likely to chip off in this handling. The tests on tinning are, first, a chemical test which, by means of alternate immersions in solutions of hydrochloric acid and sodium sulphide of stated strength and for stated periods and times, tells in effect the amount of tin on the wire. Should this test, however, be made too severe, it might compel so thick a coating that the latter would crack when the wire is bent. Another test specified is to bend the wire around a given mandrel dependent on size of wire and then immerse it in a sodium solution for stated intervals. Both these tests must be made with care, as otherwise, the exposed copper ends of tested samples will affect the test, and, possibly, the solution. These tests are empirical in their nature and are what might be called factor of safety tests; being made under severer conditions than are generally met in practice. Again, since we have been making inspections and tests on wire, we have heard much of corrosion of copper in insulated wires, due to oxidizing agents, etc., in the insulation; these acting direct on the copper on account of defective tinning. But our experience to date with field samples fails to show any action of this kind which is clearly due to such causes, or what might be called internal causes. At the same time, all tinned wire can to advantage be inspected before insulation, to show that tin was properly applied and the copper wire is free from splices and sufficiently smooth to permit of good tinning.

Every sample of wire which we have yet seen in which the copper was corroded also showed the rubber and braid badly decayed or dried out and, conversely, where the braid and its saturation appeared still good, the insulation, tinning and copper seemed O. K. This evidence is, however, negative rather than positive, but would indicate that the tinning is generally well put on.

Tests on Copper-Clad Wire.

Copper-steel, or, as it is sometimes called, copper-clad, is a relatively new product, commercially, and, therefore, as yet, not so much is known about how it develops with age, and the specifications under which it is bought are more nearly a manufacturers' than a commercial specification. Certain essential points, however, seem obviously to offer opportunities for tests: The percentage of copper, as determined by cross sections, and resistance; the resistance itself, the breaking strain and the nature of the weld of the two metals The breaking strain, resistance and cross sections can be told by methods indicated for ordinary copper wire. The nature of the weld can be told after a sample section has been properly polished and etched and examined under the microscope. An apparently practical test, also, consists in bending the sample around a mandrel of stated size and coating it with a prepared solution of gelatin, water, sulphuric acid and potassium ferricyanide; the exposed iron showing up as a blue coloration of the gelatin. Both these tests are, however, somewhat new and I am not, at this time, fully prepared to pass on their value.

Much can, however, be told of the value of the copper coating by examining bent samples of copper steel under a good glass or microscope.

Galvanized iron wire is, in a way, analagous to copper-steel wire except that it lacks the low resistance qualities

of the former. Similar tests are, however, called for in the way of cross section measurements, weights, resistance, tensile strength and the value of the galvanizing coating. All except the tests on galvanizing coating are like similar tests on copper and copper-steel wire and the coating tests are, in a way, analagous to those for tin coating on copper. The solution is different; to test for galvanizing, a copper sulphate solution is used, and in case of poor galvanizing a deposit of copper shows on the exposed steel. Bending tests round mandrels of stated size are also of value as showing whether the galvanizing will crack, although these latter are considered by some engineers as not practical, as a galvanizing coat thin enough to stand appreciable bending will not give to the wire the protection against weather which should obtain. Also the claim is made that where this galvanized wire needs to be bent in splices, it is impossible to get any galvanizing of value ductile enough to stand the short bends that are required. Further than this, splices in question should always be specially protected so that any exposed iron, due to cracking of the galvanizing, will not rust.

Lead covered cable, in a way, are the most important, I believe, of any class of conductors used in telephone service; this on account of the large number of circuits they contain, the fact that they are generally placed underground and hard to test and repair, and also because they are expensive and costly to install. The tests called for here are conductivity tests, capacity tests, high voltage and insulation resistance tests and tests on paper used for insulation and the thickness, quality and application of the lead cover. The resistance, capacity, and high voltage tests require the same factory apparatus called for in tests on rubber insulation and, in addition, special testing apparatus to measure electrical capacity. These tests are mostly made on cable not immersed in water, although sometimes this latter is required on voltage and insulation resistance tests, although, unless some reason exists for doubting the manufacturer's ability to lead his cable, the water immersion seems to be an extreme requirement and a test without water immersion, together with the manufacturer's guarantee on this point, would seem to be all that is essential. The tests on the lead covering itself are, first, as to thickness, which is a direct measurement; and then whether the lead is composed of the proper material; this being in the nature of a chemical analysis to determine the quantities of tin, zinc, etc., and whether these are in such proportions as to make a ductile and durable cover.

The quality of paper used as insulation on the wires is important; it should be a tough, of good quality and treated so as to resist absorption of moisture, although leaded paper cables are supposed to be entirely free from moisture, and the lead is to keep all moisture out, while the sole function of the paper is, I believe, to form the necessary mechanical separation of the individual wires from each other.

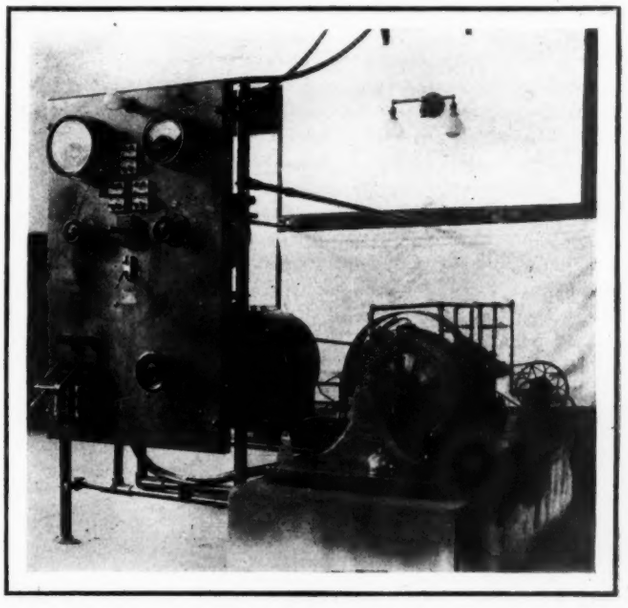
So much for technical and specific points. There is also a decided commercial value to specifications and tests and inspections at factories, in that such specified, inspected and tested wire is more carefully made up by the manufacturer, for his own protection, and, according to his skill, with a greater or less margin of safety than actually required. This is done on the theory that some of his material will always average below the balance. Again, inspected materials are treated with more care in shipment, as damage in handling could be more easily traced. Again, these shipments are more prompt and complete, as there is a representative on the spot following them up; and where certain lengths are specified or methods of shipments, reels, coils or certain size of coils, tracers, twists, etc., these can be checked up much more easily by factory inspection than in any other way.

The purchasing agent working with a proper specification will obtain samples promptly when shipments are made and can see for himself their general characteristics; these samples, properly tagged and set aside by him or, in any event, similar samples set aside by the inspection bureau, will keep an actual record of this particular lot of material and afford a valuable check against improper handling of it by linemen in the field.

In conclusion, I have not meant to carry the idea that specifications and factory inspections and tests are a panacea against all wire troubles, but simply to claim they are of considerable value in reducing same and if properly made and followed up, will serve as one of the many checks which mark the difference between the well-managed company and those exercising less business care and ability.

High Frequency Outfit Used by Major Squier for Duplex Telephony.

The patents issued to Major Geo. O. Squier of the U. S. Signal Corps, as abstracted in TELEPHONY, described quite fully his method of accomplishing results in duplex and multiplex telephony through the combination of transmission with two classes of waves—one set the ordinary electrical waves set up by a transmitter in series with a battery and induction coil,



Generator Producing 20,000 to 100,000 Alternations per Second for Multiplex Telephony.

the other the extremely high frequency waves, such as are used in wireless telephony. The outfit for creating these high frequency waves consists, in fact, of a high frequency generator of the type designed by Mr. R. A. Fessenden with the cooperation of Mr. Alexanderson and others of the General Electric Co., for his system of wireless telephony which has been operative for some years.

The high frequency generator used by Major Squier in his experiments is shown in the accompanying illustration.

Telephone Company Trying Out Automobile.

The Pacific Telephone & Telegraph Co., is preparing to thoroughly test the utility of a certain founteen horse power, two-cylinder business runabout. One of these cars was recently shipped to Salem, and others to Tacoma and Walla Walla. They are equipped with searchlights to enable the line men to follow the wires at night.

Prime Importance of Accurate Telephone Accounting*

An Argument for Monthly Reports Showing All Details of the Business, as Against Quarterly Statements—Manager of Business Compared to Mariner, Who Must Take Frequent Observations to Determine His Location—Items Often Overlooked

By Charles F. Bender

All will agree to the necessity and importance of keeping correct, accurate and intelligent records of all the transactions connected with your business, for the company or individual not up to date in such matters will surely, sooner or later, come to grief. As you are aware, accounts and accounting were originated through the desire, or, I should say, through the necessity, of ascertaining exactly the results of one's ventures. The objective point has ever been to evolve such a system of accounts as will give correct data covering every phrase of one's business.

A great many changes have been made along these lines, but the key-note of accounting has always been in the direction of getting better and better results.

It is a matter of utter impossibility for any of you to do all the work associated with accounting and in order to protect yourself in these matters, you have had to employ subordinates to take care of such details. Many times, your success or failure depends upon your ability to get efficient employes. When your business spreads out, each man is put on special work and under special heads of departments, and an organization is thereby created. Reports from these subordinates are made and it is exceedingly important that they should be in just such shape as will show intelligently to the head of the concern the exact condition of the business at the end of any required period.

Many promising and rapidly developing enterprises have foundered on the rocks of financial trouble because actual conditions were not known. It does not follow because the gross business is large that everything must be well. As a mariner must take frequent observations to determine his location, so the manager of a business must, if he desires to safely conduct it, have such a system of accounts (which of course must be efficiently administered) as will furnish such information and data as are necessary to indicate the real results of the business as well as its true financial condition from time to time.

Of the importance of proper systems of account to the business man, the banker, those directing our public institutions and our governmental officials, it is hardly necessary to speak. The importance to manufacturers of being able to ascertain accurately the cost of producing their wares, is generally admitted. Modern industrial and commercial development also demands accounting systems that will admit of ascertaining earnings and financial condition much oftener than once a year after the annual stock-taking.

The telephone companies, or a great many of them have been making quarterly reports. This method is faulty, as it is possible for things to creep in and be covered up by such a quarterly report, which would not be possible in a monthly report. The monthly report is the ideal one, as it gives the management the information it desires promptly so that it can determine with very little delay whether it is going behind or going ahead. In either case, it can put forth such measures promptly as will meet losses or develop the business more aggressively if the monthly showing is good.

These monthly statements should take up and include every item of earnings and expense covered by each month. By that I mean that every item of earnings should be ascertained and included and also every item of expense. The tendency is to fall down on expenses by not properly showing monthly proportions for state, city and county taxes, tax on gross receipts, tax on wires and poles, rights of way rentals, interest on bonds, etc. In many instances the failure to do this is due to the fact that these items are paid once a year, and when included in that month show an abnormal expense for that month. How much better to divide this expense up by months, which is the proper way, rather than load it up in the month in which it is paid.

This also applies to casualty insurance, advertising, interest and discount, legal expenses, fire insurance and any other expense that might extend over a period of several months. Another item of expense is the charging off of a certain amount each month to cover bad debts, which may average about 2 per cent of gross receipts, although it is much less than that with a great many companies.

The question of depreciation of plant is a hard one to handle as a great many companies contend that their repairs keep up the plant in good condition. At any rate it is a matter for arbitrary decision on the part of the managing officials.

A prolific source of trouble is that some companies will constantly fool themselves by not making proper charges to construction or operating accounts. It is only a matter of time before a realization of the error is brought home to them.

It is, of course, absurd to think that accounts should be incorrectly kept. A good manager who is up in his business with a proper system of monthly reports giving a detailed statement of each earning and expense will be able almost at a glance to detect inaccuracies. Comparative statements in this case are essential either with two months previous or the corresponding month of the previous year. These comparative statements will show up losses of revenue or increase of expenses in each of the different accounts, and inquiries started will at once bring the information desired so that remedies can be applied.

It is not necessary that you should have a wholesale increase of records and an accumulation of data in addition to those you are now using, unless you find that your present systems are not giving you what you know you ought to have. Records and figures which serve no real purpose or which cost more than they are worth are a luxury and should be eliminated at once.

Details are essential and the knowledge of just what details are needed comes only through daily contact with the problem. The efficient manager and office force can simplify and harmonize processes and can develop, arrange and interpret general data. Then, when the final reports are made, the information contained therein will be clear, concise, intelligent and valuable to the stockholders for whom it is intended, and who have the right to know that their business is properly conducted and that the conclusions shown on the reports are facts on which they can absolutely depend.

*Address delivered at annual meeting of Western Pennsylvania Independent Telephone Assn. Mr. Bender is auditor of the Pittsburgh & Allegheny Telephone Co., with headquarters at Pittsburgh.

Progress of the Telephone in the Operation of Railways

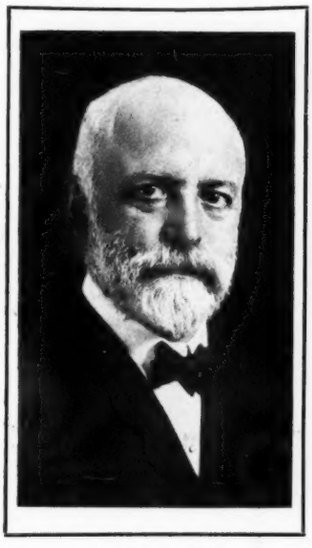
Superintendents of Telegraph of Railways Throughout the Country are Invited to Make this Department a Medium for Exchange of Ideas, Operating and Equipment News, Discussion of Practical Topics—Several Pages Every Week to be a Review of Railway Telephone Progress

Plans of the Editor for this Department.

This editorial is addressed to railway telephone men, and to railway telegraph men who are interested in the progress of the telephone. Every week, from now on, TELEPHONY will have some matter appealing directly to them. It is not at all the purpose of this paper to let loose a horde of trained writers upon the railway telephone business to write it up. In fact, that is precisely what we shall refrain from doing, and we think the railway telephone men will agree with us that our plan, which has been proved by years of experience in the other branches of telephone journalism, is the one to put in effect.

Our idea is to put our journal at the service of the railway men, to help them to improve their acquaintance with one another, and knowledge of the business.

The applications of the telephone in railway work have already grown to such importance, and the work of extension is moving so rapidly, that problems require too much discussion, and too much exchange of information, to allow ordinary methods of correspondence to satisfy the needs of the field. We know the mutual goodwill which prevails among railway men, and the desire of the different men to co-operate by letting one another know what is going on. But to attempt this by ordinary methods of correspondence at the present time is like trying to carry on the business of a great modern city with the limited amount and the exceedingly primitive kind of sea-shell money used by the American Indians in their traffic with their fellows.



Mr. P. W. Drew.

On the other hand a railway telephone man who has access to the pages of a weekly journal circulating among all his fellow clansmen, can reach them all at least once a week, if he is willing, with some message of progress, some brief, businesslike description of a problem encountered and solved, by simply dropping a few lines to the editor of TELEPHONY.

It is in publishing such messages as these—practical talks by practical men—and the personal news, which will knit the members of the field together in the bonds of friendship, as well as get them interested in a great work, that TELEPHONY expects to make itself useful to this branch of the industry. And in the name of this work it suggests, invites, and urges the same immediate and hearty co-operation from all, which it has been promised by the many with whom this subject has been discussed before the formal starting of this department.

Let everybody send his bit of news, or longer descriptive article, as he wishes. But we hope nobody will let the opportunity pass by default.

The Association of Railway Telegraph Superintendents—A Brief Review of Its History, and Influence on Adoption of the Telephone.

By P. W. Drew.

Secretary of the Association.

The Association of Railway Telegraph Superintendents was organized at Chicago on November 20th, 1882, announcing as its object the improvement of the railway telegraph service.

At its next meeting, held in Chicago, June 13, 1883, the record showed a membership of 43, with W. K. Morley, of the Chicago & Alton, president; C. Selden, of the Wabash Ry., vice-president; and P. W. Drew, of the Chicago & Eastern Illinois Ry., secretary and treasurer of the association.

The present membership of the association is 185, and includes a representative of nearly every railroad in the United States and Canada. Annual meetings are held, generally in the month of June. Nearly every large city has been visited by its convention. The proceedings, including copies of the papers read, and the discussions are published and distributed. The papers cover a wide range of topics, and have brought out a great deal of extremely valuable information. Among the titles of papers which have been read are the following: "Insulation," by Thos. A. Edison (Denver, 1892); "The Telephone and the Railroad," C. Selden (Detroit, 1894); "The Railway and the Telephone," Henry W. Pope (Detroit, 1900); "The Telephone as an Adjunct in Railroad Train Movement," C. Selden (Detroit, 1900); "The Telephone in Railroad Service," F. P. Valentine (Buffalo, 1901); "Application and Value of Telephone and Railway Systems," A. C. Ferguson (New Orleans, 1903); "Transposition of Telephone Lines, Cross Talk and Induction," F. F. Fowle (New Orleans, 1903); "High Tension Wires on Railroad Right-of-Way," W. J. Camp (Chattanooga, 1905); "Safe-guarding Railway Telegraph Lines Against Damage from Sleet and Wind Storms," Wm. Maver, Jr. (Chattanooga, 1905); "Railway Telephone Service—Cost of Line Construction," Frank F. Fowle (Chattanooga, 1905); "Train Order Rules," C. Selden (Chattanooga, 1905); "Maintenance and Operation of Telephone Service on Railway Company Lines," S. F. Van Akin, Jr. (Atlantic City, 1907); "Experiments with Concrete Poles," G. A. Cellar (Atlantic City, 1907); "Wireless Telegraphy," Wm. Maver, Jr. (Atlantic City, 1907); "The Use of Special Instruments in Telephone Service," Robert E. Chetwood (Atlantic City, 1907); "Report of Committee on Wire Crossing Legislation," G. H. Groce, Chairman (Atlantic City, 1907); "Dispatching Trains by Telephone," W. W. Ryder (Montreal, 1908); "Qualifying Operators for Train Dispatching," C. S. Rhoads (Montreal, 1908); "Depot Wiring from the Contractor's Standpoint," J. H. Jacoby; "Testing and Care of Wires," V. T. Kissinger (Detroit, 1908); "Censorship of Railroad Telegrams," J. G. Jennings (Detroit, 1909); "Standardized Equipment," E. J. Little (Detroit, 1909); "Telephone Construction," J. C. Kelsey (Detroit, 1909); "Composite Telephone Block-

ing," W. F. Williams (Los Angeles, 1910); "Delivery of Commercial Messages to Passengers on Trains," E. P. Griffith (Los Angeles, 1910); "Protecting Telephone Lines from Lightning and other Disturbances," M. E. Launbranch (Los Angeles, 1910); "Report of Committee on High Tension Wire Crossings," Wm. Bennett (Los Angeles, 1910). This committee, G. A. Cellar, chairman, was enlarged and continued and is still carrying on its work in connection with similar committees of the National Electric Light Association, Maintenance of Way Association, American Institute of Electrical Engineers, American Street Interurban Railway Association, and the American Telephone & Telegraph Co.

In 1909 two divisional sections were created, divided by the western limits of Eastern Division time, the Eastern Division to hold meetings in the months of November and March, and the Western Division in September and January. Minutes of divisional meetings are published and distributed. Each division selected its own chairman, and these chairmen were put upon the Executive Committee of the general Association.

The present officers of the Association are:

President, I. T. Dyer, S. P. L. A. & S. L. Ry., Los Angeles, Cal.

1st Vice president, J. B. Sheldon, Union Pacific Ry., Omaha, Neb.

2nd Vice president, Wm. Bennett, C. & N. W. Ry., Chicago.

Secretary and treasurer, P. W. Drew, M., St. P. & S. S. M. Ry., Chicago.

Chairman, Eastern Div., C. Selden, B. & O. R. R., Baltimore, Md.

Chairman, Western Div., E. A. Chenery, Mo. Pac. Ry., St. Louis, Mo.

The next annual meeting is to be held at Boston, Mass., June 19th to 23rd, 1911.

Selective Telephone Signaling with a Common Storage Battery on Railroad Tower Lines.

By S. T. Wilbur.

Superintendent of Telegraph, Illinois Central Railroad.

The telephone selector is the factor which has made telephone train dispatching feasible.

A majority of the larger railroad systems and many of the smaller systems have, within the past three years, equipped at least one district with selectors and telephones which are being used for train dispatching purposes. Several railroads have gone into the project quite extensively.

Since each train dispatcher must be able to get in touch with from twenty to fifty way station offices, telephone operation was not practicable until some method other than code ringing was devised. The selector has furnished that outlet.

In equipping a district only the dispatching office is provided with a calling device, thereby giving the train dispatcher absolute control of the signaling. Since he uses an operator's head receiver and a chest transmitter, it is only necessary for the way station operator to speak to attract attention.

Occasionally an extension bell is placed in the dispatching office, and a generator provided at each way station, although such an arrangement is not generally considered to be of sufficient value to justify the installation and maintenance expenses.

The selector promises to find an additional field in the matter of doing away with generator code ringing on party lines. Nearly every railroad yard office and interlocking tower contains several telephones, and each telephone is on a circuit with several other telephones. Code signaling means a jargon of sounds and signals.

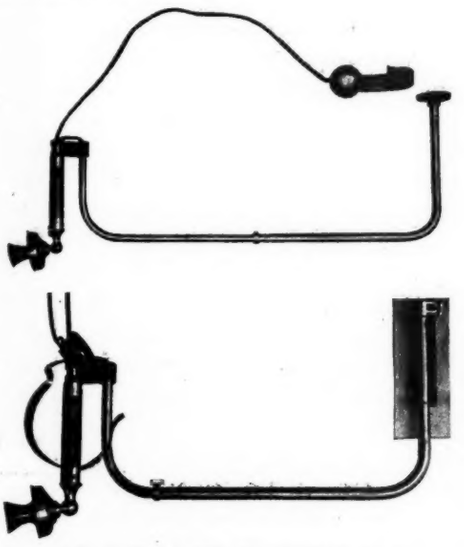
The Illinois Central Railroad has in operation, from Randolph street, Chicago, to Harvey, a telephone circuit known as its tower line. The distance is twenty miles, and each of twelve stations and towers is provided with a calling dial and selector, and a telephone minus bells and generator. These twelve stations are able to selectively signal each other. The calling dial operates an ordinary thirty-five ohm telegraph relay, which, through its local contact points, applies energy to the twelve selectors and the proper selector bell.

Current is taken from thirty cells of sixteen ampere-hour storage battery, a charge of one hour daily being sufficient to keep the storage battery properly energized. This battery operates the main relay, selectors and selector bells.

Kellogg Switchboard & Supply Company's New Railway Extension Desk Telephone Arm.

The Kellogg Switchboard & Supply Company has recently designed a new and unique transmitter arm, built especially for railway service.

It is used in connection with regular flexiphone stand and head receiver.



Kellogg Extensible Transmitter Arm.

As shown in accompanying illustrations, it can be extended nearly double the closed length, being adjusted by rubber head screw.

This stand can be furnished for mounting on flat topped desk or secured to a vertical surface. The telephone proper is pivoted for convenience in using at different angles.

Operator's Tobacco Bag Puts Dispatching Telephone Out of Commission.

An unusual cause for trouble on a telephone was discovered here a short time since, when an operator at the Lake Shore & Michigan Southern R. R. station tried to report a train which had just passed that office. The railroad company has recently installed a selective telephone system which it uses for reporting trains, also for handling such other business as can conveniently be taken care of by telephone. The system is so arranged that all stations can listen in at any time without disturbing any conversation that may be going on, nor interfering with the dispatcher's ringing any station he desires. But as the battery circuit to each transmitter is always open when that particular station is not talking, they use a button to cut it in whenever the station wishes to be heard.

On this occasion the operator was listening in and wait-

ing his turn to report a train which had passed his office. In the meantime he filled his pipe to take a smoke. When his turn came he pressed the button and reported the train, but got no recognition from the dispatcher. He repeated his report and still got no response from the dispatcher. Upon investigation the operator found that he had set his tobacco bag close to the telephone box, which is located on the table before him, and the bag had fallen over on the two binding posts which lead to the battery. The tobacco bag was partially made of tin foil. Upon removing the bag the trouble disappeared, and the line was O. K.

Vermilion, Ohio. A. J. Giddings.

Suitability of Various Letters for Transmission.

In railway telephony the use of code words and the necessity for exact transmission make it desirable for officials whose duty it is to make up codes, and for dispatchers and operators to appreciate fully the conditions which make it possible to transmit some letters better than others. A writer in the *National Telephone Journal,* London, has analyzed, experimentally and otherwise, the transmission capabilities of the alphabet, and his conclusions are presented in the following:

We read that the telephone transmits sound. It does not, however, transmit the original sound, but electrical waves carry vibrations corresponding to those of the vocal organs or other sound producers, reproducing them at the distant receiver, which emits its own sound identical with the original. What sounds are really transmitted over the telephone, and is there any interference by external vibrations? Due to the lack of space, we cannot dwell on all kinds of sound, but will refer particularly to the transmission of speech sounds, for the chief use of the instrument is to produce conversational tones, and will devote a few minutes to a study of the alphabet.

All public speakers, actors and singers must learn from the beginning that the vowels carry the sound because they compel an open mouth and throat which acts as a sounding board, and the action of the vocal cords, which are the only human means of creating sound, is unimpeded or muffled by the lips or tongue. For instance, take the sound of "a" in "Kate" or better, as in "father," and note that there is no real sound of the "K" until the sound of "a" is given; also note that "t" in "Kate" is purely breath and carries no sound in itself. Notice the "f" in "father," which has no carrying qualities until the "a" is sounded.

Let's analyze the alphabet.

A—Sound.

B—Very little sound until followed by a vowel.

C—Practically no sound.

D—Very little more than B.

E—Sound.

F—Purely breath; no sound.

G—Some sound, very guttural.

H—Purely breath.

I—Sound.

J—Some sound, but very guttural.

K—Practically no sound.

L—Little sound (formed by tip of tongue being placed high against the roof of the mouth, the sound coming only past the sides of the tongue).

M—Humming sound; nasal.

N—Sound, but very nasal.

O—Sound.

P—Purely breath.

Q—Purely breath.

R—The thrill carries sound, and "r" is sometimes called a semi-vowel on this account. Other uses of "r" carry very little sound.

S—A hiss, but carries very little vocal sound.

T—Purely breath.

U—Sound.

V—More sound than "f", but muffled.

W—No sound, except as a combination of "oo" and "a" ("oo", "a", "z"—"was"). "W" compels very heavy breath action when followed by "h" as in "where".

X—Combination of "k" and "s" or the sound of "z".

Y—Sound, or rather a combination of "e" and "u"; as, "e", "u", "ok"—"yoke". "y" also takes the sound of "e" or "i" at times

Z—Like "s" has but little sound.

New Variety of Telephone Train Dispatching.

The richest story ever told about the central Branch is not in a class with what really happened along the line of the Leavenworth & Topeka a few days ago, says the Leavenworth (Kans.) *Times.* The dispatcher of the road lost the L. & T. "flyer," and as a last resort wired the agents to telephone farmers along the right-of-way for aid in locating the train. It was found fast on a hill, whereupon the dispatcher wired to the nearest agent instructions to be communicated by the farmer to the train crew to cut out the train and get to Ozawkie Compared to the L. & T. there is a good deal to be said for the old mule car.

Plant Value and Depreciation Enter Into Rate Ruling.

The Wisconsin Railroad Commission recently handed down a ruling in the case of the Mount Morris Farmers Telephone Co. which involved the questions of physical valuation of plant and of depreciation allowance. The company was authorized to materially increase its rates to enable it to earn 7 per cent on the investment. The commission considered the increased value of the plant occasioned by extensions and improvements made, as also a depreciation provision of 6 1-2 per cent.

Linemen Under Tent on Pole in Cold Weather.

A construction wrinkle which is not altogether new, but which is distinctly effective and satisfactory, was introduced during the recent period of cold weather in Knoxville, Tenn. The telephone companies used a portable canvas tent, which fitted over the cable boxes and wires on telephone poles, effectually protecting the linemen while at work. The tent had four walls and a roof. It could be let down over the top of the pole and could be run from one pole to another by means of a pulley.

Harrington Emerson's Twelve Principles of Efficiency.

In his work as Efficiency Engineer, which is attracting such widespread attention, Mr. Harrington Emerson urges that business should be conducted with due consideration of the following:

(1) Definite plans and ideals.
(2) Supernal common sense.
(3) Competent guidance.
(4) Discipline.
(5) The fair deal.
(6) The despatching of work.
(7) Reliable, immediate and adequate records.
(8) Determination of standards.
(9) Standard practice instructions.
(10) Standardized conditions.
(11) Standardized operations.
(12) Efficiency rewards.

"Every proposition, every plan, every method and device," says Mr. Emerson, "that runs counter to any one of these principles is to be rejected without further waste of time."

Practical Letters from the Readers

More Letters on "Static" During Snowstorms

Static disturbances occur or originate a few times each year on metallic toll lines, usually during a snow storm and wind. The exact conditions for their appearance cannot always be foretold by the state of the weather.

I believe the friction of the wind or snowflakes, or both together against the wire, generate static electricity of sufficient potential to discharge across the spark gap in the carbon arresters, or between the winding of a drop and core, such discharge occurring at intervals from a few seconds to a few discharges a second. Each is attended by a loud, sharp snap in the telephone receiver if it is connected to the line. The snapping can be heard on all neighboring lines, such as farm lines, local grounded lines, and even on other metallic toll lines. It is often difficult, when listening on a grounded farm line for instance, to believe that the disturbance originates only on metallic lines.

We here stopped this snapping in two or three ways. One way is to connect a high resistance and impedance such as one or two bridging bells in series between one side of the line and ground. The resistance of course should be as high as possible and still allow the charge to leak off rapidly enough so as to stop the snapping, otherwise the metallic toll lines will be unbalanced sufficiently to cross-talk perceptibly and bother the working. It is needless to say that these remedies are applied only while this snapping lasts, which is usually a few hours.

It is sometimes quite a job to hunt up coils or other resistance in an exchange where perhaps 15 or 20 metallic toll lines center, and connect to all. A small piece of damp cloth laid across the carbon blocks in the arrester of the metallic lines will help.

Eureka, S. D. J. A. Gardner.

The first experience with "static" I ever had was in the winter of 1902. One day the drops on the long distance lines kept coming down, and as fast as the operator could restore them, down they would come again. At last she plugged in to see what the trouble was, and she thought she was hit by lightning. I was called, got on the line, and of course "got a crack in the ear." "On the telegraph somewhere" I said. Just about that time the district manager of the long distance company about 75 miles east of us called in and wanted to know if the lines could be on the telegraph or electric light wires at any place near us. I told him there was no place that I knew of. As there was no way to locate the trouble by testing from the office they started a lineman out to find the trouble, but by the time he had caught a train and gone 50 miles the trouble was off.

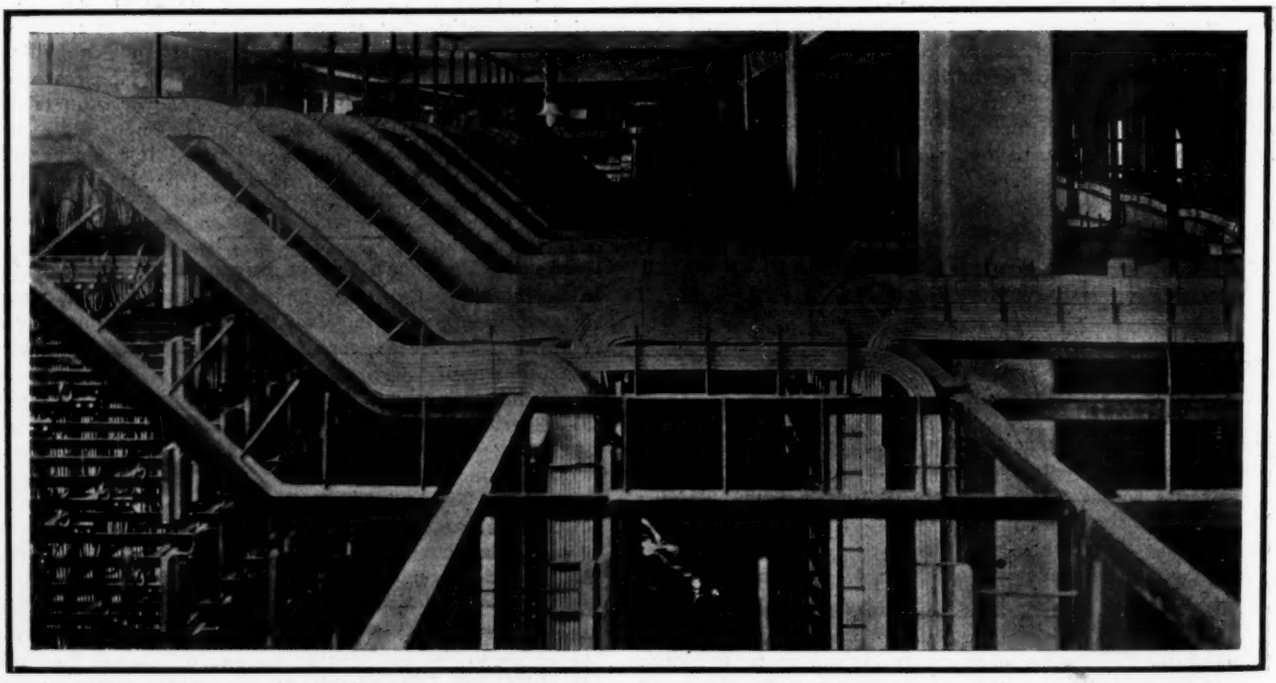
The next day the district manager told me that they were having the same trouble on some of the other lines, and had two linemen out on it, but they could find nothing. He reported it to the chief engineer, who was an old eastern man and had had the same trouble with static before, so was able to tell what the trouble was.

During every winter since then I have had some experience with "static," and have tried to arrange so that just as soon as static begins to cause trouble I can ground the wires. I had noticed that it did not bother any on grounded lines, or on metallic lines that a central grounded until after the operator lead plugged in and cut off the ground. I took two 1,600 ohm bells, bridged one from each side of the line to ground, and found that the "static" would go to ground this way and leave the lines so quiet that one could talk all right.

I have taken a lot of old 1,600 ohm ringers and fastened them on the wall close to the terminal board of our toll and farmer lines, and, with a lot of old junk, fixed what I call a plug board. I can put in some lightning arrester plugs to connect the ringers to the lines and ground. On the lines that ring central to ground through the drop I have arranged a similar scheme so that I can put in a plug and leave the drop connected to the line all of the time.

If any one has a better way to get rid of the "static" I would like to hear of it.

St. Peter, Minn. C. R. Sargent.



This Remarkable Photograph Shows the Cable Runs in the Main Exchange of the Kinloch Telephone Company, St. Louis, Mo.—It is Undoubtedly One of the Most Interesting Pictures Ever Taken of this Particular Kind of Central Office Equipment Detail—The High Grade Workmanship Upon the Cables Is Clearly Shown.

Queries on Theory and Practice

Rheostat for Controlling Voltmeter Deflection.

I am sending a sketch (Fig. 1) of a proposed rheostat voltage reducer for a Weston Model 24, 3 and 30 scale voltmeter, resistance 10,000 ohms and 1,000 ohms.

Please advise as to number of points necessary in the rheostat. I am advised by the Weston company that the total resistance of the rheostat must not exceed 10 ohms.

The instrument has 60 scale divisions. Two dry cells show a deflection of from 56 to 59 scale divisions. I want to use three cells and control the voltage so that the needle can be stopped at exactly 3 volts. Will the circuit indicated do it? Please advise.

The principle which you propose to utilize in securing an exact voltage is correct within certain limitations. It assumes that the fall in potential along the wire of the rheostat is proportional to the resistance, and is not affected by the connection or disconnection of the voltmeter. Fig. 1 gives the essentials of the scheme with the voltmeter measuring the voltage to be used for testing. It is supposed that the unknown resistance can be inserted in series with the voltmeter, the new deflection noted, and the value of the unknown calculated by the formula.

$$X = R\ (E/e - 1)$$

in which

X = resistance unknown.
R = resistance of voltmeter.
E = voltage used for testing (secured by connections of Fig. 2).
e = reading with unknown resistance inserted.

It is, however, essential that the rheostat shall have low resistance and carry a relatively large current, at least one hundred times that used by the voltmeter when measuring E. Also the battery must be capable of furnishing this current continuously without polarizing (dropping in voltage).

The reasons may be explained by reference to Fig. 2 as follows:

The voltmeter, with part r of the rheostat, form a shunt, with the rest of the rheostat, m, in series. The voltmeter measures the voltage between the points P and L. Suppose the rheostat has 100 ohms resistance and the voltmeter be detached. Let the

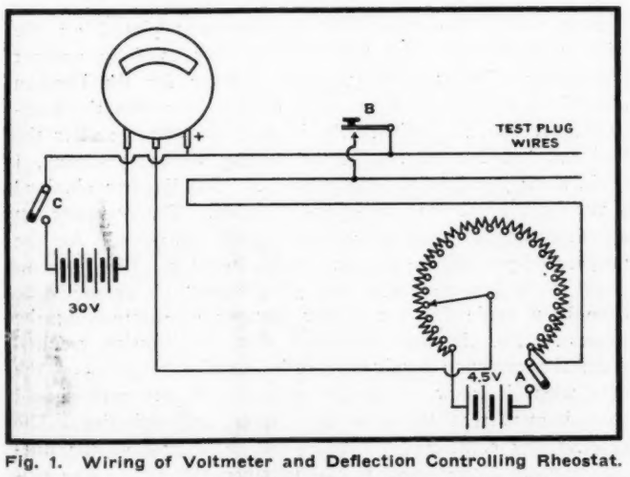


Fig. 1. Wiring of Voltmeter and Deflection Controlling Rheostat.

battery maintain 4.5 volts across the whole rheostat. Then the 3 volt point, P, will be such that 2-3 of 100 ohms, or 66.67 ohms lie between P and L. But when the voltmeter is attached as in the figure it becomes a shunt to r and lowers the resistance between P and L to 62.5 ohms. Hence the voltage across r is reduced to 2.94 volts instead of 3 volts. If now we try to measure a 10,000 ohm unknown, the joint resistance of the shunt paths is raised to 66.26 ohms, which makes the voltage between P and L 2.994 volts. This is the real value of E, which should be used in the above formula. But, not knowing it, we use the value 2.94 volts as obtained by direct connection in Fig. 2. Since this is .054 volt in error it will make the unknown figure out as 9,800 ohms instead of 10,000. This is 2 per cent too low.

By making the total rheostat 10 ohms, the error in the above case will be reduced to less than a quarter of one per cent in the

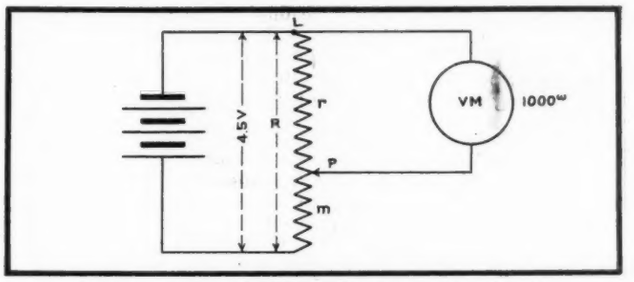


Fig. 2. Theory of Rheostat in Voltmeter Circuit.

worst conditions. It may be that for your purposes an accuracy of 2 per cent will be all that you need. In this case you can use new dry cells without danger of running them down. But if you use the 10 ohm rheostat it will consume enough current to require storage cells or many dry cells abreast.

Make the rheostat by wrapping resistance wire (Manganin, Climax Advance or some other) on a wooden rod ¼ inch in diameter. No. 26 Climax wire has 2 ohms per foot, so that 5 feet will give you the required 10 ohms. If you use 100 ohms, you can wind enough of it on the rod to give you the desired variation, and then coil the rest of it elsewhere, keeping it in series with that on the rod.

Rub the insulation off the wire along one side of the rod and fit a slider to make contact at any point. This method has given excellent success.

Bridging Connection of Series Telephones.

Please explain to me which is the best way to connect up a series telephone, 80 ohms. Should we cut it in series or bridge across the line?

As many as two series telephones can be connected in series on one line and give fair service. Some have connected two 80 ohm series telephones in parallel (bridged across the line), but it is not to be recommended. For more than two telephones they should be of the bridging type.

Telephone for Life Saving Station.

A telephone is to be installed at the United States Life Saving Station, which guards the Ohio Falls at the Louisville, Ky., wharf, and which is the only inland life-saving station in the United States. Captain "Billy" Devan, of the Life Saving Station, is now making arrangements with the authorities at Washington whereby the service may be established.

Regulation of Wires Suspended Over Railroads.

The Indiana legislature has passed a law that is attracting considerable interest among telephone, telegraph and electric light companies. The bill was championed by the Railroad Commission of Indiana and is designed to lessen the hazard of railroad men. The law provides that all telephone, telegraph and electric light and other transmitting wire companies' wires crossing a railroad track must be of aluminum or copper, suspended between two posts on either side of the tracks at the crossing point, and that the span must not be more than 100 feet long and the wire suspended at least twenty-one feet above the tracks.

Legal Cases and Decisions

By A. H. McMillan

Franchise in Iowa Cities.

The ——— Telephone Co. has had a toll line in our town for years, the line being built before the town was incorporated. This last year it bought exchanges adjoining us and then rebuilt its toll lines into our town, but instead of building on the same street again, it built a half mile of new pole line on a different street, leading to our office. Our office is about one-quarter of a mile from the business part of town. We signed a contract with said————Telephone Co., but find it very unsatisfactory and are thinking of canceling the contract. The questions I wish to ask are these:

Had the ———— company a right to build on a different street without a franchise or permit? If I cancel this contract has the ———— company a right to build on our streets to the main part of town. If it has not, and should send down a construction crew, what steps can I take to stop them? Would it be up to me or the town to stop them? Should they ask for a permit? Can the council grant it or would it go to a vote of the people? Our town will stay by us. They have no time for the ———— Company.

Whatever information you can give me on this will be appreciated.

The toll rates have been raising ever since they bought the exchanges adjoining ours, and 8 messages out of 10 have to be repeated even to our nearest towns

If the ———— Telephone Co., is incorporated under the laws of the state of Iowa, it can use the streets of a city without the city's permission. In construing the laws of the state, the term "public highways" includes "city streets." Chamberlain vs. Iowa Tel. Co., 119 Ia., 619; 93 N. W., 596. The laws of the state give a company incorporated under them the right to use "public highways" of the state. It would therefore seem that the ———— Telephone Co. could build on such street in the town as it chose and neither you nor the town could stop it. The council would undoubtedly have the right to designate the streets that it should occupy with its poles and establish reasonable rules for its use of the streets, but the council would not have the right to exclude it entirely. No vote of the people would be necessary.

House Moving in Iowa.

What are the laws in Iowa with regard to house moving? Can a man move a house through the streets of a town or city and compel a telephone or electric light company to move its wires at their own expense? How long a time does the house mover have to notify the telephone company about moving the wires? What would be the penalty if the house mover should run against and break down wires without notifying the company?

A man has no right to move a house through the streets of a city or town and compel a telephone company to move its telephone wires at its own expense. A person wishing to do that must himself pay the expense of moving the wires and must give a bond to the telephone company to protect it from all damages that may arise on account of the work. The house mover should give the telephone company reasonable notice concerning moving the wires. If the house mover runs into and breaks the wires he can be compelled to pay the damages. If the house mover threatens to move his house against the wires without permission of the company, he can be restrained by injunction from doing so, until he has agreed to pay the expenses and given the bond referred to.

Toll Line Contract.

The court of appeals of Kentucky has modified its opinion in the case between the Gravelswitch and Lebanon Telephone companies, by holding that the contract for the physical connection of their lines could not in any event be terminated until the expiration of thirty days, after notice given subsequent to April 1, 1912. This modification is based upon the action of the clerk of the court in omitting in the record he sent to the supreme court, a clause of the contract which was the subject of the suit. Gravelswitch and L. S. Tel. Co. vs. Lebanon L. & L. Co., 132 S.W., 424.

Raising Contract Rates.

Can you tell me if we are, from a legal standpoint, immune to suits should we raise our rates and the subscribers try to hold us on these contracts? The contracts referred to provide that the telephone company shall build and furnish all material used in the construction of the rural line and further agrees to give service to all the telephones on all the lines owned and operated by the telephone company, save its toll lines, for the consideration of $1 per month, payable in advance. The company further agrees to keep the line and instruments in repair to the best of its ability. The subscribers agree to abide by the rules and regulations of the company, to dig the holes used in the construction of said lines and to board the lineman while working on said lines. The rules and regulations provide that the company may discontinue service at any time to prevent fraud or abuse; that if it should fail by natural causes or by accident, it shall not be liable for damages by reason of the failure; that the rate is $1 per month, payable in advance. The cash consideration for the construction of the line is also provided.

In our opinion, the contracts enclosed with the above query are binding, and the company would not have the right to raise its rates without the consent of the person signing the contracts. If it did raise its rates and the subscribers refused to pay them and their telephones were taken out, we think the company would be liable in damages to the subscribers, or could be compelled by mandamus to replace the telephones.

Injury on Defective Pole.

An action was brought against a telephone company by a lineman for injuries sustained through the falling of a defective pole. The company's foreman was placed on the witness stand and gave testimony tending to fully support the theory of the company. The attorney for the lineman offered to prove in the presence of the jury that the company's foreman had said to the injured man shortly after the accident, "If I were not in the employ of the company, I could show you how to help yourself." The lineman obtained a verdict against the company of $22,500. The company on appeal contended that this offer of proof was made for the purpose of prejudicing the jury which heard it. The Supreme Court held, however, that the offer would be presumed to have been made for the proper purpose of discrediting the witness. The lineman contended that his injuries resulted from the company negligently ordering him to go upon the pole when it knew, or by the exercise of due care should have known, that the pole was rotten and defective. The defense was contributory negligence on the part of the lineman and that the lineman had assumed the risk. The evidence, on examination, was held to show that the lineman was not in control of the work as contended by the company, but was under the direction of the foreman. There was evidence that the injury broke the lower part of the lineman's spine and paralyzed him from the hips down, making him wholly dependent and helpless as well as destroying his health and vigor. Under such circumstances the court held that the verdict was not excessive. Korby vs. Missouri & K. Tel. Co., 132 S. W., 712.

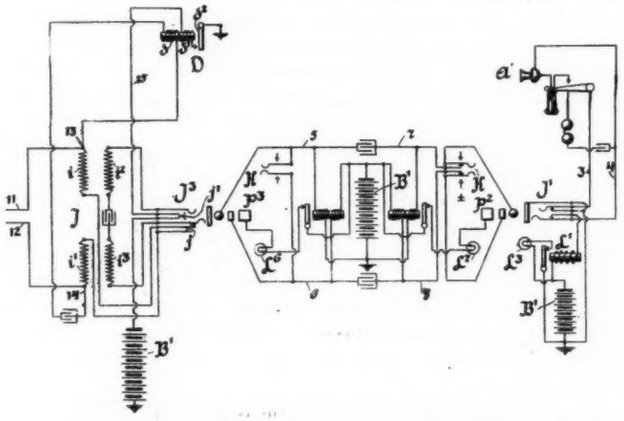
From the Patent Office

By Max W. Zabel

TELEPHONE EXCHANGE SYSTEM.

J. C. Mitchell, Cleveland, O., patent No. 984,958, Feb. 21, 1911; assigned to North Electric Co., Cleveland, O.

In a trunk circuit the line 11, 12 extends to a jack at the "A" operator's board. Alternating current coming in over the line 11, 12 serves to actuate the signal *D*. Insertion of the plug includes the coil *i*, closes the contracts *j*, and opens the

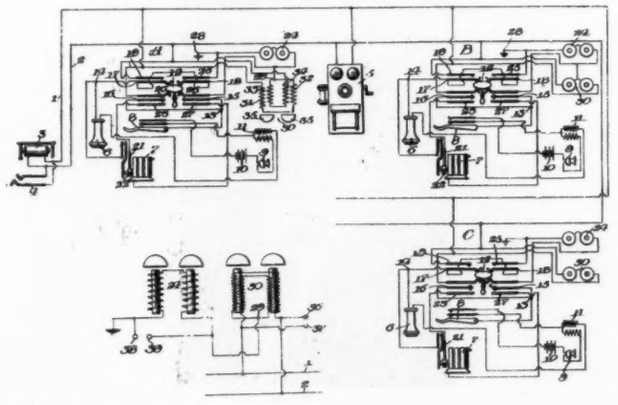


contacts j^3. This permits battery from the main exchange to flow over the line 11, 12 and through the coils *i*, *i*.' Closing of this circuit notifies the "A" operator that connection is made. The lamp L^7 gives the "B" operator supervision over the subscriber A^3

TELEPHONE SYSTEM.

O. M. Leich, Genoa, Ill., patent No. 984,945, Feb. 21, 1911, assigned to Cracraft, Leich Electric Co., Genoa, Ill.

In this system metallic conversation may be carried on between the main exchange, indicated by the jack 4, and any of the subscriber's instruments, and also local talking service over the two wires and ground between any of the telephones on the line. A key 12 connects the telephones either metallically on the line wires 1 and 2, or to the ground over these two wires in parallel. The ringer 24 receives the grounded signals and a ringer 30, having four coils, receives the metallic signals.



This ringer 30 has all of its coils in series across the wires 1 and 2 and serves at the same time as a phantom coil for the grounded conversation, as the neutral point 29 of the phantom circuit is midway of the windings of the polarized bell 30. The talking circuit for metallic purposes is between terminals 36 and 37 and for phantom service is between the terminals 38 and 39

ANTISEPTIC TELEPHONE MOUTHPIECE.

Wm. M. English, of Sausalito and L. E. Boukoksky, and S. M. Lichtenstein, of San Francisco, Cal., patent No. 985,021, Feb. 21, 1911.

An antiseptic telephone mouthpiece is set forth herein which has a groove around the mouthpiece support, enclosing a wick which projects into a small bulb of antiseptic compound.

AUTOMATIC ADJUSTABLE HOLDER FOR TELE-

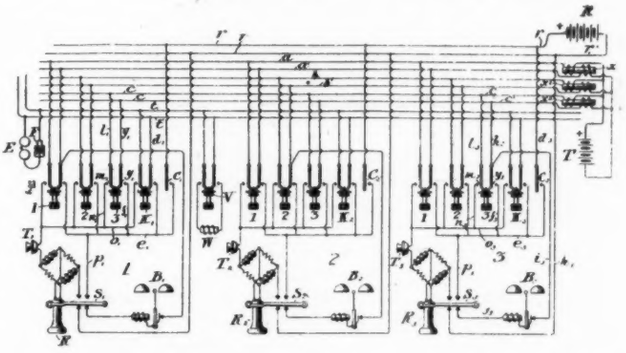
F. S. Weyrs, Philadelphia, Pa., patent 980,465, Jan. 3, 1911.

A telephone bracket has a plate for supporting the telephone which is angularly adjustable vertically, and which also carries an arm for supporting the receiver. Means are also provided for automatically operating the receiver hook.

INTERCOMMUNICATING TELEPHONE SYSTEM.

R. H. Manson, Elyria, O., patent 984,686, Feb. 21, 1911; assigned to Dean Electric Co., Elyria, O.

This intercommunicating system is designed also for use in connection with a main exchange. The illustration shown in this digest includes the intercommunicating system but does not include the apparatus at the particular station of the intercommunicating system which has connecting means for establishing connection with a main exchange. To call any party suppose the key 3 is depressed to its lowest position, which closes the master ringing contact C_1. The ringing battery *R*



will thereupon call party 3. The removal of the receiver at station 1 closes the talking circuit through the hook switch S_3. Both telephones are now bridged across the circuit leading from the common battery *T*. When the pressure of the key is released it returns part way to indicate the station connected, opening the ringing contact during the movement back to this intermediate position. These keys need not be returned to normal after talking, as the hook switch opens the circuit controlled by the keys.

MOUTHPIECE FOR SOUND TRANSMITTERS.

J. Graham, Philadelphia, Pa., patent No. 984,558, Feb. 21, 1911.

A mouthpiece for telephone transmitters is of light flexible material of sufficient rigidity, yet capable of being readily destroyed. An imperforate, sound penetrable diaphragm is secured to the mouthpiece and constitutes means to prevent the passage of germs and moisture through the outlet end of the mouthpiece.

Ontario Bills Likely to Pass Without Amendment.

The bills introduced by Mr. Charters in the Ontario Parliament for amendment, respectively, of the Ontario Telephone Act of 1910, and the Local Municipal Telephone Act of 1908, which have been described in TELEPHONY, are likely to pass without further change.

From Factory and Salesroom

Conventions: Virginia, Clarksburg, March 23, 24; Florida, Tallahassee, March 23, 24; Ohio, Columbus, March 30

"Phoney Bill" Makes His March Visit.

"Phoney Bill," the clever little representative of the Stromberg-Carlson Telephone Manufacturing Company, of Rochester, N. Y., who calls on all the friends of that company each month, said on his March visit, "Well. they didn't get MY goat. You bet I had a fine time at the Convention, and walkin's good." We are glad he was able to reach home in time to prepare for his regular visit. He calls particular attention to his company and the Independent shield, saying, "Jest look and see what never fails to rise up on the horizon the mornin' after."

Phoney Bill on His Way.

"Phoney Bill's" special grade of blotting paper—blots on both sides—is one of the Stromberg "Quality Products" which is making good in a decided way.

An Anti-Dusting Lightning Arrester.

One of the recent advances in the protection of telephone lines from lightning disturbances is shown in a new design of lightning arrester in which the usual air gap feature is entirely eliminated. This is not a vacuum arrester, but one in which a special composition of high resistance material is used.

The benefits derived from the use of this non-air-gap arrester are in the elimination of trouble by grounding of lines after severe lightning discharges, and in the ability of the arrester itself to withstand crosses with power lines without becoming destroyed.

The "Non-air-gap" lightning arresters were first introduced into the railway signal field. After three years of successful operation they have been adopted by practically all of the large systems throughout the country. They are also used to a great extent in telephone and train dispatching service with exceptionally good results.

It has been proven by laboratory tests that the high resistance material used in this arrester is of greater sensitiveness to static currents than an air-gap of less than 1-200 part of an inch. At the same time the resistance of this material exceeds 2,000 megohms, so it meets the two extreme conditions that are desired in lightning arresters: i. e., first, great sensitiveness for dissipating lightning and static currents; second, a high insulation between line and ground. These features will readily appeal to users of protectors when it is considered that they may be safely distributed over long circuits and in rural districts without the necessity of having to send men to clean up the grounds after discharges, and with the knowledge that these instruments are of great efficiency and capacity.

The "Non-air-gap" lightning arrester is made in several styles, combining both the open types for interior installations and the enclosed types for out-door service. The open types are of unit construction and are made with and without fuses. The enclosed type is made to suspend from the line wire or to be clamped to a cross-arm, pole or building.

This arrester is bell-shaped. Access to the working parts in the arrester is had through a screw plug in the bottom, one terminal coming out of the screw plug and the other from the top of the bell. The terminal consists of either a Fahnestock clip or a length of wire for splicing connection. The design of the enclosed type gives the greatest protection to the parts from moisture. No brittle material is used in its construction. The open types are also well made, great care being taken in the construction. The binding posts are substantial and non-turning and all other features are well covered in their manufacture.

This arrester is made by the L. S. Brach Supply Co., 143 Liberty St., New York City.

Farewell Dinner to Ernest Clark.

A select party of friends of Ernest Clark, of the Valentine Clark Co., gave him a farewell dinner on Tuesday evening, the occasion being the removal of Mr. Clark to Minneapolis. The Valentine Clark Co. has transferred its headquarters from Chicago to Minneapolis, although it will still retain an office in the former city, at 274 La Salle street.

Mr. Ernest Clark

The dinner was given at the College Inn, Chicago, and

the cordial motives prompting it are evidenced by the fact that a number of Mr. Clark's competitors were of the party. Besides Mr. Clark, the guest of the evening, there were present: Mr. Bowring, of the C. H. Worcester Co.; Mr. Watson, of Watson & Gilpin; Mr. Watkins, of Joyce Watkins Co.; Mr. Furlong, of the Valentine Clark Co.; Mr. Naugle, of the Naugle Pole & Tie Co., and Mr. Ellicott.

Telephone Industry and Hall Fuses, Both Good.

In a recent interview with Frank B. Hall, manufacturer of telephone specialties, at Newton Falls, Ohio, it developed that during the past three years Mr. Hall has lost but one small account in his mica fuse trade, and that one a comparatively trivial item. TELEPHONY has heard of several similar cases recently; all of which goes to present the telephone industry in a very creditable light. With the new plant and the additional facilities which Mr. Hall now enjoys, coupled with the personal attention which he is able to give the manufacturing end of his business, "Hall Specialties" should command an even greater trade than heretofore.

New Wasson Reel Salesman.

The accompanying picture is that of Harold W. Wasson, son of B. F. Wasson, president of the National Telephone & Electric Co., of Clinton, Ill. The youngster, who is twelve months old, is just learning to stand alone. He

He Will Be After the Business.

appears to be about to discuss the merits of the celebrated Wasson Reel, and to be fully capable of sustaining his argument. We predict a great future for Harold W.

"The Magneto Telephone That Never Encounters a Superior."

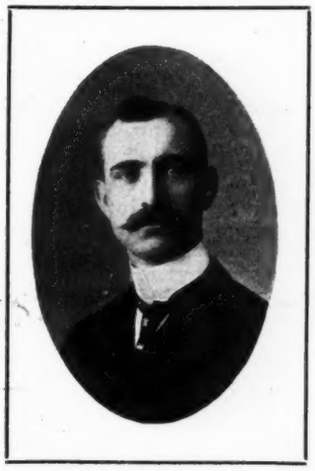
This is the striking headline employed upon a big postal card and return order blank combination, carrying a complete description of the No. 896 compact type magneto telephone manufactured by the Stromberg-Carlson Telephone Manufacturing Co., Rochester, N. Y.

A striking feature of this big card, which measures some two feet by 18 inches when unfolded, is the remarkably fine reproduction, by half tone process, of the telephone. This is so clear and so accurately worked out in detail that a practical telephone man can absolutely understand how all the parts are built and assembled. Furthermore the principal parts are designated by arrows which lead out to reading matter calling attention to the distinctive features of the apparatus.

Believing that a satisfied customer is a firm's best advertisement, the company has reproduced the names of some of its best ads. Among them are some of the most exacting and careful purchasers in the country.

Mystery as to H. S. Gilkey.

Friends of H. S. Gilkey, of the Minneapolis pole firm of Pendleton & Gilkey, are expressing some concern these



Mr. H. S. Gilkey.

days regarding that gentleman's possible fate. It appears that Mr. Gilkey left Minneapolis about a month ago on a trip to Durango, Mexico, since which time nothing has been heard from him. The burning question is as to whether or not the insurrectos "got" him, or whether he has been incarcerated in some hideous Mexican dungeon. At all events a pall of uncertainty has fallen over Minneapolis which nothing will drive away except definite advice that Mr. Gilkey is still at large and in good health.

Additional Equipment Ordered for Home, of Spokane—Subscribers Coming In Rapidly Every Day.

Thaddeus S. Lane, president of the Home (Independent) Telephone & Telegraph Co., of Spokane, Wash., was in Chicago recently to place orders for additional equipment for the Spokane plant. The last of the company's original equipment has been installed and is ready for operation.

The company's north side substation, which was equipped with a 1,000 instrument capacity, is running to the limit. Contracts for the main building exchange are equal to the primary installation planned, so that when the main exchange begins to operate it will do so virtually to its full capacity.

"We expect to have between 4,000 and 5,000 instruments working within 30 days," said Mr. Lane. "Our conduit system reaches every part of the city and the cables are installed so that nothing remains but to put the telephones in the houses and run the wires from them to the cables.

Mr. Lane added that the number of contracts signed up has far exceeded his expectations.

In the Rural Line Districts

Birt Fox has bought the Deer Creek telephone exchange and Lige Williams will be "hello girl."—*Butler (Okla.) Herald.*

Our telephone line is in a little betetr shape than it was, but very little. Can not the officers get to work and see that the lines are so that they can be used. A phone is just the thing to call in a physician, and so on. But what a nuisance when you ring and ring and never get a sound, or if perchance you do it is the party you are not after.—*Raccoon Correspondence Logan (O.) Gazette.*

Ed Wristen, the telephone man, was looking over the line Tuesday.—*Alamote Letter in Dighton (Kansas) Herald.*

W. H. Caman, former manager of the local telephone company, and now in the telephone business at Beatrice, Neb., is in the city on business. Mr. Caman was for many years the leader of Caman's band of this city.—*Winfield (Kansas) Courier.*

The Grove Co. Telephone office is presided over by a new central. Miss Briggs, who is assisted after school by her younger sister. The wires and apparatus have been overhauled and a good service is now enjoyed in consequence.—*Grainfield (Kansas) News.*

J. Burkhardt, manager of the Mutual Telephone Co., and a helper, were up from Decatur Saturday stringing new wires and putting in telephones, one for Jay Austin. Mr. Burkhardt reports Mutual business picking up.—*Gravette (Ark.) News-Herald.*

The Northern Illinois Telephone Co. are adding another row of cross bars to their telephone poles so better service can be obtained with more wires.—*Ottawa (Ill.) Fair Dealer.*

A stranger entered the library at Enid recently under the impression that it was the central telephone exchange. When he asked for "Carmen" and got it he didn't appear satisfied.—*Oklahoma City (Okla.) Oklahoman.*

Henry Hamann, accompanied by C. I. Stocking, is in St. Louis buying goods. The fact that Mr. Stocking went along, makes Hiawatha people think that Mr. Hamann has assumed the controlling interest in the Hiawatha telephone and telegraph guy anchor. Mr. Stocking now sports about in Mr. Hamann's auto.—*Hiawatha (Kansas) Democrat.*

Miss Clella Teel has resigned her position at the telephone office and will be succeeded by Mrs. Mattie McLaren. Miss Teel will go to Independence and take a course in a commercial college.—*Altoona (Kansas) Tribune.*

H. J. Willis arrived Monday from Goodnight, Texas, where he and family are now residing. Recently he traded his telephone exchange at Cordell for three sections of land a mile and a half from Goodnight. He reports it has been very, very cold there this winter.—*Frederick (Oklahoma) Enterprise.*

Miss Olga Chinberg, manager of the local exchange of the Northwestern Telephone Co., is spending her Christmas vacation with her brother in North Dakota.—*Lake (Minn.) Republican.*

At a meeting of the telephone company Monday afternoon, Joe Cosand, John Filinger and Joseph Barton were elected directors. From the looks of the crowd, there must have been a rousing time.—*Cuba (Ark.) Record.*

(Continued)

The greater the Railroad, the more branch lines it has. The Pennsylvania does not use 110-pound rails on its branches.

But you telephone companies do. How?

Well, say you use No. 8 copper on your long "through lines" and No. 9 copper to talk fifty or a hundred miles,—there's your heavy rail on your branch line.

A No. 12 Copper Clad would correspond to the rail the Pennsylvania would use; one big enough to do the work but not too big to waste money.

You'd not be safe with a No. 12 copper, for every storm would put you out of business, but the Copper Clad stays up.

Even if you used a No. 10 Copper Clad, you'd save thirty per cent in first cost and seventy-five per cent in maintenance.

(To be Continued)

WELD-CLAD

TRADE MARK

Duplex Metals Company

General Office and Works:

Chester, Pa.

Branch Offices:

Monadnock Bldg., Chicago Singer Building, New York

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. H. K. McCANN, who for four years was advertising manager for the New York Telephone Co., New York City, has accepted a similar position with the Standard Oil Co. Previous to the time that he was made advertising manager he handled the company's advertising, although the company had no special advertising department. Mr. McCann organized the department and secured the assistance of Mr. Robert S. Scarburgh. From time to time during the four years, as the company's territory was enlarged and the work of the advertising department better organized, the force was enlarged until at the present time it numbers 66. His work is well known by telephone men throughout the country. Mr. Scarburgh succeeds him as advertising manager of the New York Telephone Co.

MR. H. L. DE SPAIN, manager of the Protection Telephone Co., Protection, Kan., has taken over the management of the Clark County Telephone So.'s system, with exchanges at Ashland, Englewood, Sitka and Lexington. He will be located at Ashland.

NEW COMPANIES.

VIRDEN, ILL. (Macoupin Co.)—The Virden Telephone Co. has been incorporated by Chas. H. Snell, Nellie Snell and U. G. Tucker. The authorized capital is $25,000, par value of shares, $100.

HUSTONVILLE, KY.—The Hustonville Telephone Co. has been organized by W. R. Marksbury and G. T. Mayhew, with capital stock of $1,000. G. T. Mayhew is manager.

SKANEATELES, N. Y. (Onondaga Co.)—The Mottville Telephone Co. has been incorporated with an authorized capital stock of $3,200. The incorporators are John L. Shultz, Skaneateles; James H. Huxford, Skaneateles Falls; Willis J. Moreland, Daniel C. Sheldon, Michael J. Hackett, Flora B. Brown, John W. Brown, Mottville; and Thomas F. Powers, Skaneateles Falls. Incorporating attorney, C. R. Milford, of Skaneateles, N. Y.

FORWARD TWP., PA. (Allegheny Co.)—The Forward Telephone Co. has been incorporated with an authorized capital stock of $5,000, par value of shares $25. The incorporators are O. P. Gamble, C. T Hetherington, B. F. Hayden and Clarence Irwin, treasurer.

JAVA, S. D.—The Java Farmers Telephone Co., authorized capital stock, $10,000, has been incorporated by Jno. Bauer, Jacob Staller and Fred Spirey.

CLAUDEVILLE, VA.—The Three-Fork Telephone Co., with A. T. Jessup as president; J. A. Barnard, secretary and treasurer; W. H. Waller, vice-president, was recently incorporated. Capital $5,000.

FINANCIAL.

GENESEO, KAN.—The Geneseo Telephone Co. declared a dividend of ten per cent at its annual meeting recently.

KIRKWOOD, PA.—The Southern Telephone and Telegraph Co. has increased its capital stock from $35,000 to $100,000.

CONSTRUCTION.

LINEVILLE, ALA.—The Clay County Telephone Co. is rebuilding its line from Lineville to Delta and is making other improvements to its system.

GLENDORA, CALIF.—The Home Telephone Co. has a force of men engaged in constructing a modern telephone plant in Glendora. The new plant will provide for one thousand subscribers. About 200 new subscribers that cannot be served at the present time, owing to the inadequacy of the plant established, will be given service.

WEST LIBERTY, IA.—The West Liberty Telephone Co., of which M. F. Mellick is the owner, is contemplating the rebuilding some of its rural lines. Service is given to 842 subscribers from the West Liberty exchange.

M'CUNE, KAN.—The McCune Telephone Co. will install about 1,500 feet of aerial cable as soon as the weather permits, and will also construct some copper circuits and long distance lines. A considerable amount of repair work will also be done to bring the system up to par.

BOWLING GREEN, KY.—The Bowling Green Home Telephone Co. plans to expend about $10,000 in extending its system this spring.

PONTIAC, MICH.—The fire committee of the city council has recommended, it is reported, that a new switchboard be immediately purchased and installed, which will provide eight circuits for the city and carry 120 boxes. This board would be modern in every respect and would add materially to the fire protection of the city.

FORBES, MO.—The Forbes Mutual Telephone Co. is contemplating the construction of several new lines in the spring.

HOWARD, R. I.—A 30-line telephone system is being installed in the new State Insane Asylum by C. W. Whitman, of Providence, R. I.

DAYKIN, NEB.—The Daykin Telephone Co. is tearing down its exchange building on East Main street, preparatory to constructing a new one.

PHILADELPHIA, PA.—The Keystone Telephone Co., it is reported, will erect a new exchange building on Five-Mile Beach. An all underground system will be installed.

PROVIDENCE, R. I.—C. W. Whitman, 171 Westminster St., is engaged at the present time in the furnishing of specifications and apparatus for the construction of an 18-party line in a rural district in Rhode Island. A switchboard will be installed in the residence of one of the subscribers. About 22 miles of wire will be strung.

PROVIDENCE, R. I.—The telephone system installed in the Sockanossett school for boys is being reconstructed under the supervision of C. W. Whitman, of Providence. Six hundred feet of cable and new instruments have been ordered. He has also recently completed the installation of a 25-line intercommunicating system in the House of Good Shepherds, and reports an order for a 20-line intercommunicating telephone system for a manufacturing plant, calling for instruments, cable, cable terminals, batteries, etc.

BRUCE, WIS.—The Chippewa Valley Telephone Co. will soon do away with the heavily loaded poles near its central exchange, and will install about four blocks of cable. Other improvements in the Bruce and Ladysmith exchanges will be made.

IRELAND, W. VA.—The Kanawha District Telephone Co. will build and operate telephone lines in Lewis, Braxton and adjoining counties. F. B. Emit, P. H. Crawford, and O. E. Westfall, of Ireland, W. Va.; Lee Bull, John F. Bull, and G. L. Cunningham, of Letch, W. Va., and J. E. Bossely, of Falls Mill, W. Va., are the interested parties.

ELECTIONS.

CONROY, IA.—The following officers of the Iowa Hilton Telephone Co. have been re-elected for the ensuing year: President, W. A. Welsh; vice-president, H. W. Maas; secretary, John Ahrens; treasurer, G. Furler; directors, August Hudepohl, Dick Schwarting, John Wichman.

CRYSTAL, MICH.—The Crystal Telephone Co. held its annual meeting recently. The reports of the secretary and the manager showed the company to be in a good condition, entirely out of debt and in a position to extend its lines during the coming year. The following were elected trustees for the current year: L. R. Philips, J. H. Elliott, J. S. Lechner, Carl Eavey, J. L. Barber, J. G. Deyo, and J. M. Lascelle.

FAIRMONT, MINN.—The annual meeting of the Welcome-Triumph Telephone Co. was held in this city and the following officers elected: President, P. R. Matson; vice president, Harry Sheppard; secretary and treasurer, John Wolford; manager, Ed. Hanley. The company has had a very prosperous year and declared a 6 per cent dividend.

NORTHFIELD, MINN.—The annual meeting of the Northfield Telephone Co. was held recently and officers and directors chosen for the ensuing year as follows: President, John Pennington; vice president, R. B. Morrill; secretary, D. D. Turner; treasurer, H. O. Dilley; Frank Harkness, H. F. C. Albers, J. M. Jack, A. E. Cleland, A. T. Withers and C. W. Zimmerman. The secretary's report showed an average increase of over six telephones per month during the year, seventy-four in all. A total of 267 telephones are now in use. The report also indicated an increase in cash receipts of over $100 per month.

DARIEN, N. Y.—The Darien Telephone Co. elected the following officers at the recent meeting of the stockholders: President, N. A. Harper; secretary and treasurer, E. J. Shirm; directors, Supervisor Homer A. Weeks of Darien Center, M. F. Lincoln of Ray, Carl Sprague of Alexander, Frank M. Rogers of Darien, and William A. Norton of Corfu. It was voted to increase the capital stock from $5,000 to $9,000.

MERCER, PA.—At the annual meeting of the stockholders of the Black Town Telephone Co. the following directors were elected: George Gross, John Creighton, William White, Wm. A. Munnell and W. J. Hunter. This company now has about 230 telephones and 80 miles of pole line.

FLORESVILLE, TEX.—At a meeting of the directors and stockholders of the Rural Telephone Co. the following directors were elected for the ensuing year: John W. Wood, S. K. Franklin, R. A. Wiseman, O. D. Rhode, R. B. Myers, R. Voges, A. Reinhardt, J. J. Hester and D. H. Woodlee.